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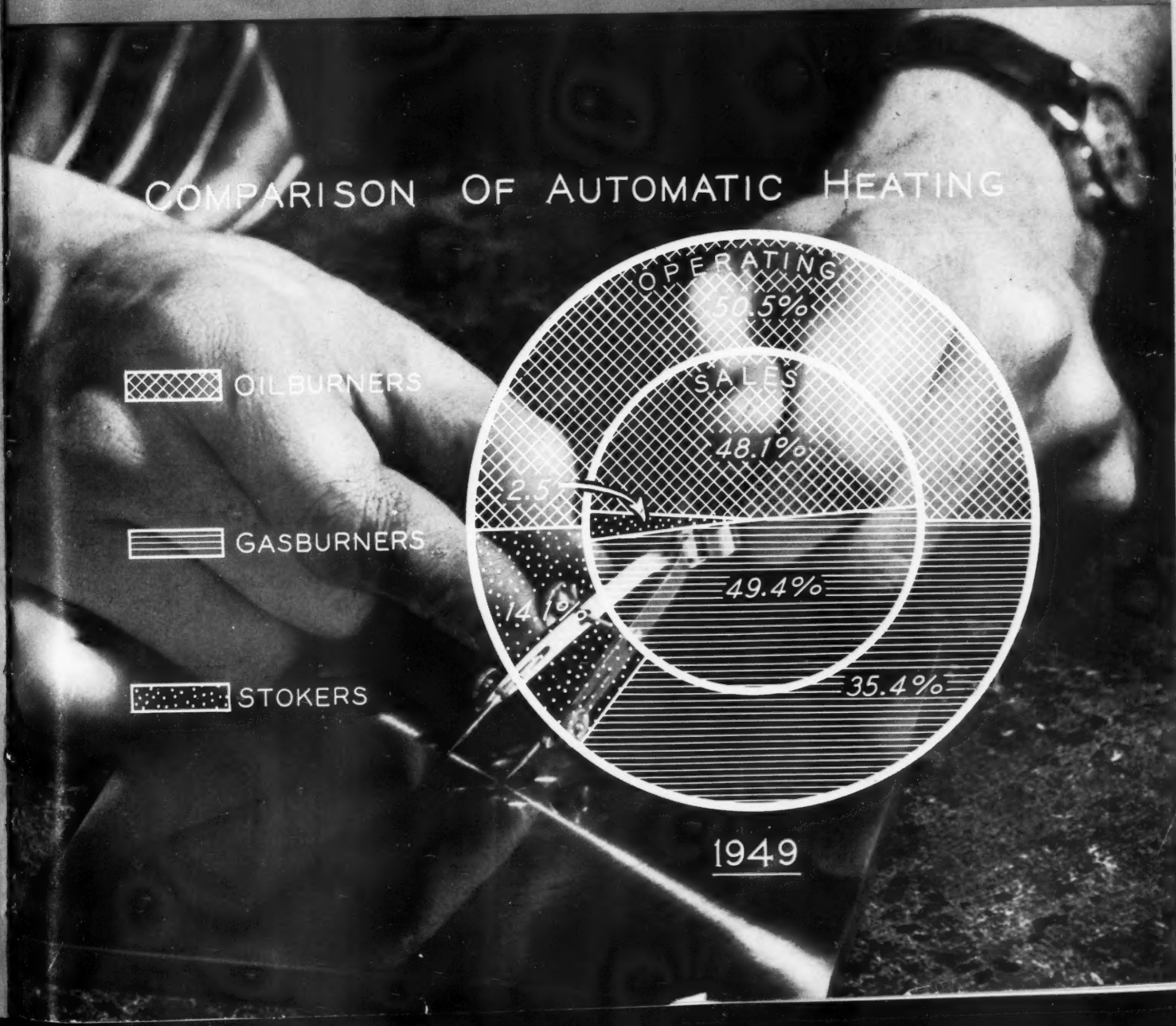

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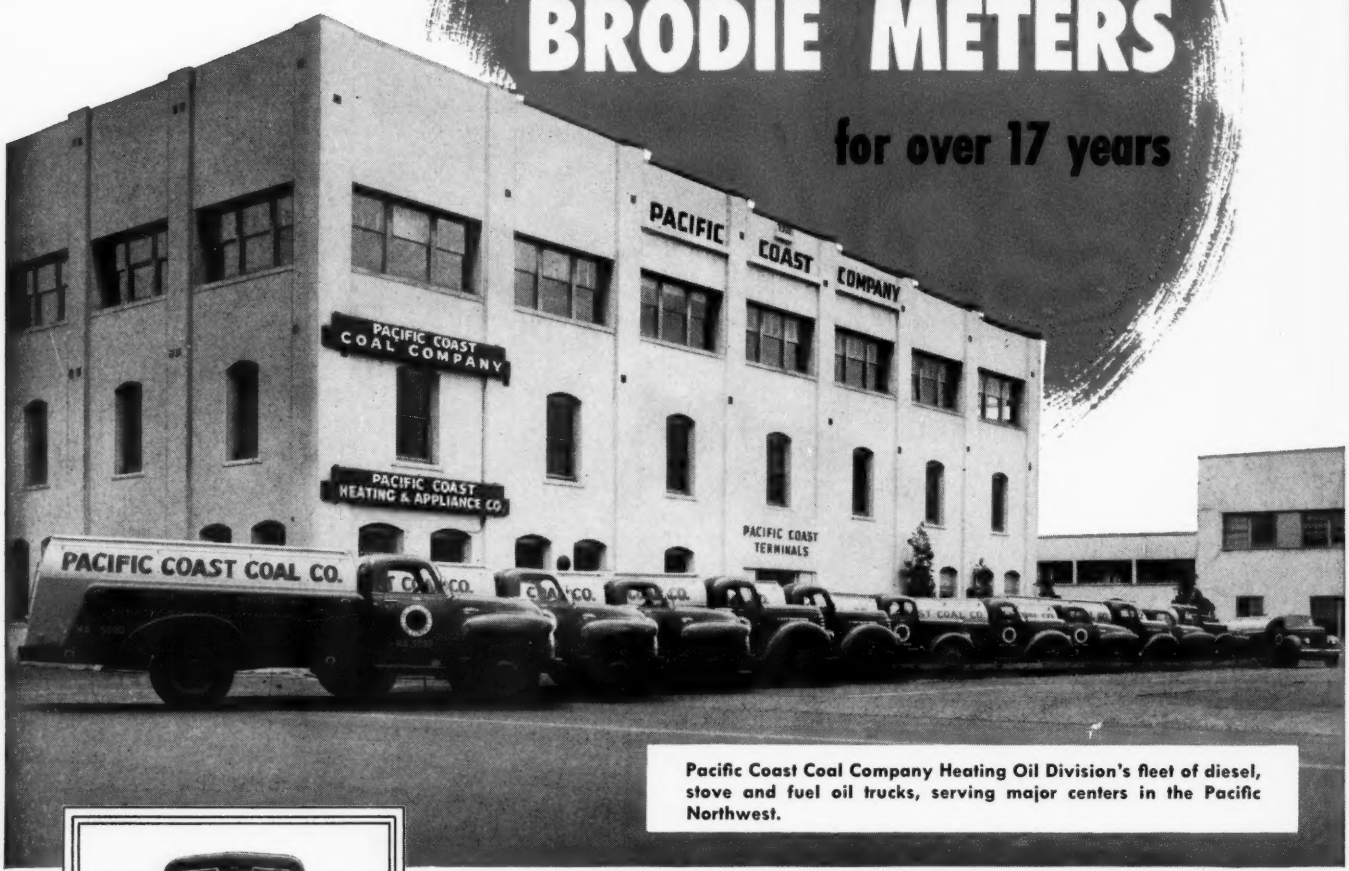
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PACIFIC COAST HEATING & APPLIANCE CO.
PACIFIC COAST TERMINALS
PACIFIC COAST COAL CO.

Pacific Coast Coal Company Heating Oil Division's fleet of diesel, stove and fuel oil trucks, serving major centers in the Pacific Northwest.

Brodie BiRotor Meter equipped with Brodimatic Counter.

— now using the New BRODIE BiRotor

Every truck in Pacific Coast Coal Company's Seattle fleet is a modern up-to-date delivery unit equipped with Brodie Meters and Brodimatic Quantrol Printers. As one of the West's largest heating oil distributors, The Oil Division of Pacific Coast Coal Company has been a satisfied Brodie user for over 17 years. New loading rack facilities now under construction will include New Brodie BiRotor Meters—the latest development in the field of metering. Brodie BiRotor Meters insure maximum efficiency and top-level performance. For full details, write or call your nearest Brodie representative today.

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VOL. 9, NO. 1

fueloil & oil heat

JANUARY 1950

Names in the News

C. H. Schuttenberg, St. Louis, Mo., has been named sales representative for Nu-Way oilburners. O. K. Gipple, sales manager, Nu-Way Corp., Rock Island, Ill., states that Mr. Schuettenberg's territory will include the states of Missouri and Kansas. His background includes sales experience with several prominent heating equipment manufacturers.

Walter M. Barber, who first joined the company in 1915, on January 3 became sales promotion and advertising manager, Perfection Stove Co., Cleveland, Ohio. Since early 1942 he has been manager of Perfection's Cleveland district sales office. Much of the credit for making Perfection products known throughout the world is attributed to Mr. Barber. In 1919 he went to Europe for the company and supervised introduction of Perfection stoves and heaters in the United Kingdom and the Scandinavian countries. Five years later he took a trip around the world as Perfection's representative and next organized the Philadelphia branch, which he managed for two years. *J. M. Purdum,* the company's assistant advertising manager, will continue in that post.

Michael J. DeBliss and *John P. Murray* have been added to the sales staff of Thatcher Furnace Co., Garwood, N. J. Both are sales trainees and for a period of ten months will undergo extensive training in the sales, engineering and production divisions of the company, before assignment to territories as

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HEAT-RESISTANT STAINLESS STEELS

GIVE ALL FOUR!

-when used for Combustion Chambers

1. MORE QUIET BURNER OPERATION
2. CLEANER HEAT
3. BETTER TEMPERATURE CONTROL
4. CONSIDERABLE SAVINGS ON FUEL COSTS

If you are using or contemplating the use of heat-resistant stainless steels for combustion chambers for oil burner furnaces, we are specialists in producing these types of steels. Whether you are a large or small user of these steels our steel making facilities can offer exceptional service by especially shearing to your specified combustion chamber steel blanks, or multiples thereof. Write us for additional information.

INGERSOLL STEEL DIVISION
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310 SOUTH MICHIGAN AVENUE • CHICAGO 4, ILLINOIS

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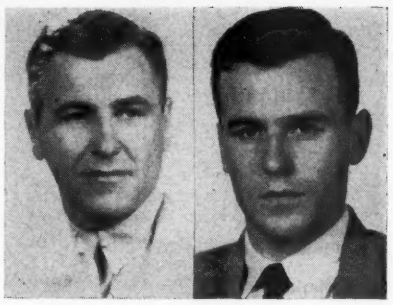


DeBliss Murray

junior sales representatives. Mr. DeBliss had been with American Radiator before enlisting in the U. S. Marine Corps for nine years. Mr. Murray joins Thatcher after an association with Koppers Coke Co. During the war he served with the U. S. Navy.

Roger D. Anderson and S. W. *Foulger* have been announced as sales representatives for National Radiator Co., Johnstown, Pa. Mr. Anderson will cover the territory of Nebraska and western Iowa and has established headquarters at 3409 Martin Ave., Omaha, Neb. Mr. Foulger's headquarters are to be located in Salt Lake City, Utah, with P. O. Box 446 announced as his present mailing address. Both men will concentrate on the complete line of National boilers, radiators and heating accessories.

Joseph E. Pogue, petroleum economist and vice president, Chase National Bank of the City of New York, was elected a member of the board of directors, Gulf Oil Corp., Pittsburgh 19, Pa., and will serve also in a consulting capacity. His election fills the vacancy created by the recent death of W. L. Mellon.

William W. Martenis has been appointed manager of sales engineering, Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., to assist in planning specifications, approve new developments and coordinate activity between the sales and engineering departments. He joined Honeywell's engineering test department in 1931, became chief designer and later, chief application engineer.

SHELL FUEL OIL

THE SOLE FUNCTION of the Shell laboratory at Sewaren, N. J., is Oil Heat research—the development of better heating oils and better equipment to burn them.

This continuing research—now entering its 22nd year—has had practical and impressive results: new production techniques to improve fuel oil uniformity and cleanliness; the Shell "Smoke Meter," the first simple, reliable device to translate smoke content of flue gases in terms of heating efficiency; and, more recently, the development of FOA—5X which keeps filter screens clean—eliminates a major cause of oil burner service calls.

The projects under way at Sewaren today promise still more contributions to the constant goal of this research—Better Oil Heat.

SHELL

SHELL OIL COMPANY

fueloil & oil heat

Editorial Leaks

If any example is needed of what happens to an industry that stops fighting, the stoker business might well be the object lesson. Surveys in the recent past have revealed more people who prefer handfiring than stokers. This seemed unreal to a competing industry, but the results of that preference now are materializing.

Last year stoker losses were greater than additions. Almost three times as many former oilburner users went back to handfiring as deserted to stokers. Small stokers in use dropped to little more than 14% of all automatic firing equipment, and the 1949 sales of less than 30,000 were the second lowest in the industry's history, and only 2.5% of the automatic heating equipment sold. The stoker business has ceased to fight. Its manufacturers have gone into other lines and its dealers have given up active competition with other fuels.

If oilheating men, faced with an increasing threat of stiff competition, need an illustration of what can happen to a complacent industry, they should keep stokers in mind. Unless we are ready to bow to superior promotion and follow miniature golf, the mustache cup and the buggy whip into limbo, some sign of real determination to promote our industry is due.

True promotion of the industry is not a one-shot operation. It is a continuing process which keeps the value and advantages of oilheating constantly before the public. Its function is preventive rather than curative. It is designed to head off trouble rather than patch a bad situation after it arises.

We have been living off our fat—the result of past promotion—since the war. Unless this industry has decided to quit, it is time for some long-term selling. It is much easier and less expensive to maintain a trend than to reverse one.

The January issue of *Readers' Digest* carries an important article on oil supply to millions of people who otherwise might continue in their half-formed fear that the country is running short of petroleum. Little of the information the article contains will be new to regular readers of these pages, but it is significant that such an authoritative story should appear in a magazine of such large circulation.

The story of oil shortage has been kept alive to some extent by uninformed people in responsible positions, but more by well-informed people whose interests are best served by such a scare. Mass education of the public is the best defense against both groups.

It is important to this industry that the *Readers' Digest* story get the widest possible circulation. It should be a part of every salesman's kit, and reprints might well be included in mailings to every customer and prospect known to members of the oilheating industry. It is but one piece of the larger promotion job we need, but an important and basic piece.

◈

An important commentary on the immediate and future oil supply is the announcement by Pittsburgh Consolidation Coal Company that it is closing the pilot plant that for 13 months has been making gas and synthetic oil from coal. Research on synthetics was being carried on in cooperation with Standard Oil Development Company until the end of operations on January 6. Research study will continue, but the plant is closed.

In a statement at the time of the announcement, Joseph Pursglove, Jr., vice-president of Pittsburgh said, "Today adequate supplies of crude petroleum are available both domestically and world-wide. There is neither the market demand nor the economic incentive to warrant large scale effort now for early commercialization of the project.

"It is impossible," Mr. Pursglove continues, "to say too much about the importance of coal cost in the economics of coal conversion. For example, of the direct operating costs of converting coal to gas and thence to gasoline, coal itself would account for about 50% of the total. Thus, it can be seen that every new charge which must be thrown into the cost of producing coal pushes farther away the day when large-scale conversion of coal can be accomplished economically.

"Another important factor affecting long range plans is the frequent interruption in supply. No large coal conversion investment can be justified if there is a chance that coal production will be on an enforced "three-day" or a "no-day" work week.

"Despite obstacles in the form of increasing coal costs and erratic coal supply, this company is continuing on an even more vigorous exploratory research program on coal conversion processes.

"While some operating problems remain unsolved, the results in the main have been definitely pleasing and encouraging. The remaining problems are such that they will require study on a laboratory scale, and this work is going forward."

◈

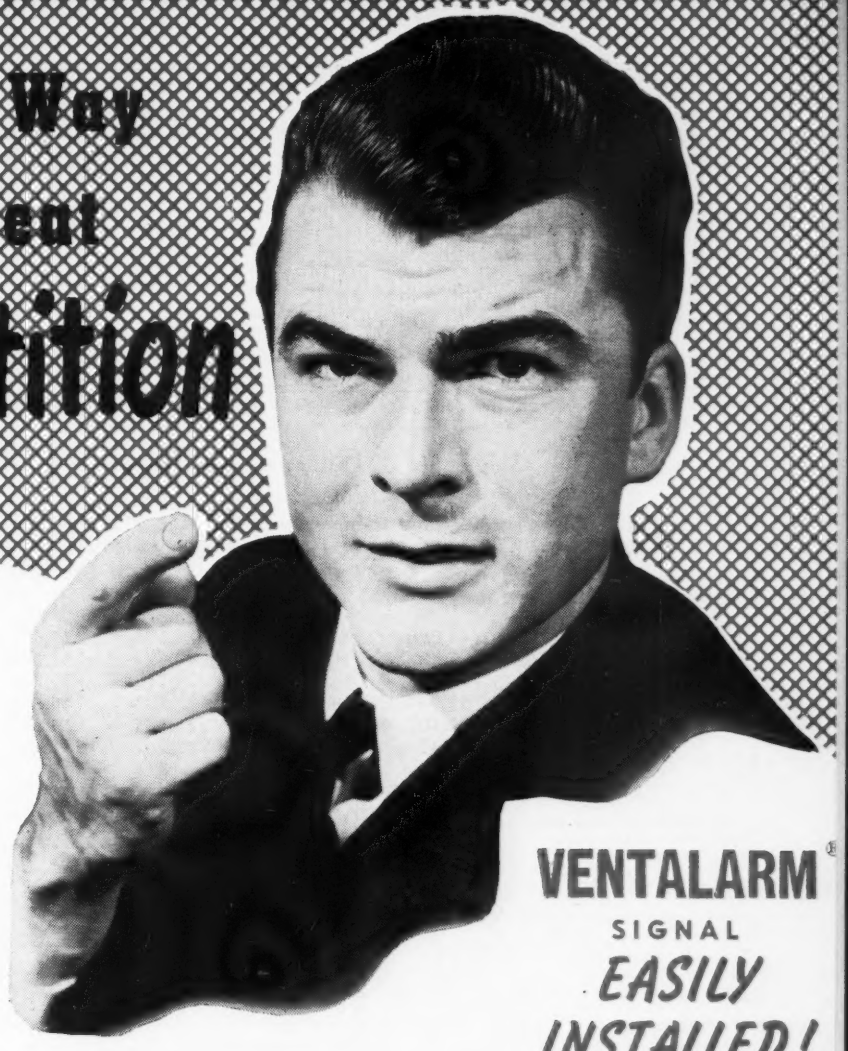
Probably it is fitting that the first issue in this second half of the century is a review of what has gone before, and a preview of what may be expected in the immediate future.

As with past January issues, this one is compiled from a tremendous mass of information supplied by working dealers in the field. These men have contributed much more time in the aggregate supplying the data than the staff has in compiling it, and we are sincerely grateful to them.

Also we sincerely appreciate the suggestions for other information that might be included in this study. Each of these suggestions will get careful consideration, though we hesitate to make the field questionnaire longer or more detailed than it has become. Work never ends on the problem of asking key questions which together reveal answers that are not asked for directly. It is for this reason we ask for all the data from each dealer. The longer and more complicated the questionnaire becomes, the harder it is for all to give complete information.

Our sincere thanks and appreciation to all who have helped in the building of this issue. May the year ahead bring increased happiness and prosperity to all.

Here's an Easy Way to Meet and Beat Gas Competition



Gas competition claims that the delivery of gas to the home is superior to the delivery of oil because it is less bothersome... more automatic.

VENTALARM®
SIGNAL
EASILY INSTALLED!

THE ONE BEST WAY to meet and beat this claim is to install VENTALARM Whistling Tank Fill Signals on your customers' tanks.

Only then can you claim that oil delivery does not disturb the household in any way . . . that you can make safe, sure deliveries with never a need to enter a home.

And you can "kill two birds with one stone" because VENTALARM Signals create new delivery savings for you. Think of this . . . all costs are repaid in the first five deliveries to a new installation or during the first heating season on an old installation. From then on, savings up to 30% of delivery costs are clear.

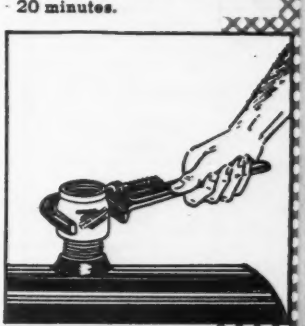
15 Major and over 3500 Independent Oil Companies are meeting gas competition and building more profitable heating seasons with VENTALARM Signals. Can you afford to wait any longer?

40 models for new and old tanks available through your regular Supply House. Address inquiries to:

SCULLY SIGNAL COMPANY
79 First Street, Cambridge 41, Mass.

VENTALARM®
***WHISTLING* TANK FILL SIGNAL**

The LC model VENTALARM signal is easily installed on old tanks. A quick compression fitting with bayonette lock eliminates any pipe threading. Takes only 15 to 20 minutes.



The LA model VENTALARM signal is installed on tank when new burner is being put in. Threaded top receives threaded vent pipe in usual manner. No extra time required.

Fully protected by U.S. and Foreign patents.
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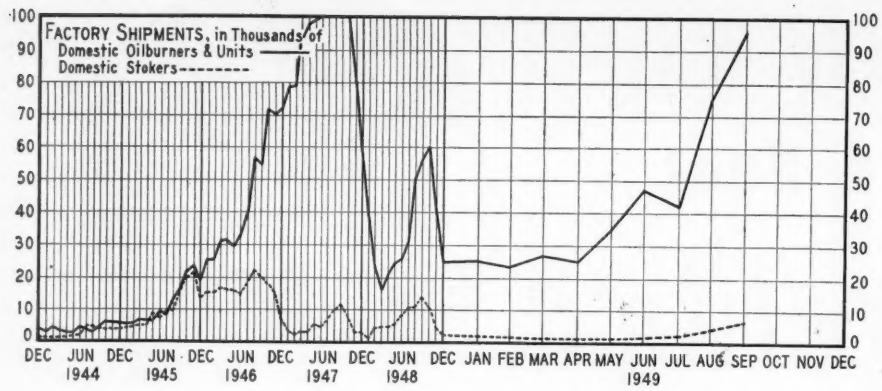
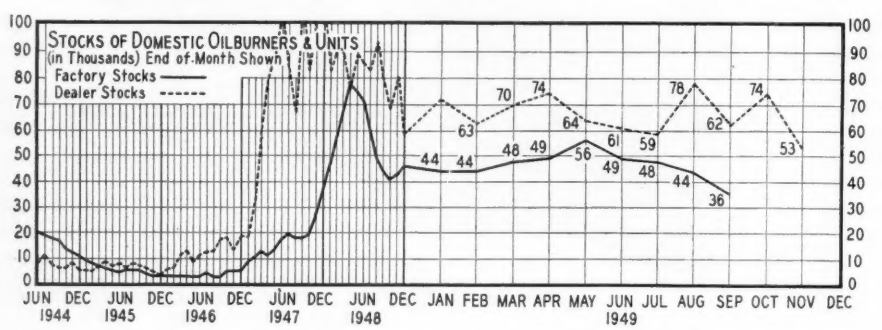

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1944 1945 1946 1947 1948 1949

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 152 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	OCTOBER			TEN MONTHS		
	1949	*1948*	*Percent Change*	*1949*	*1948*	*Percent Change*
Conversion	75,629	44,090	+ 71.5	379,370	241,471	+ 57.1
Boiler units	8,440	5,534	+ 52.5	44,694	32,345	+ 38.2
Furnace units	15,289	10,343	+ 47.8	78,718	73,047	+ 7.8
All Domestice	99,358	59,967	+ 65.7	502,782	346,863	+ 45.0
Commercial	2,707	2,507	+ 8.0	21,185	23,887	— 11.3
Total	102,065	62,474	+ 63.4	523,967	370,750	+ 41.3


STOCKS OF DOMESTIC OILBURNERS & UNITS
(in Thousands) End of Month Shown
Factory Stocks
Dealer Stocks
JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1944 1945 1946 1947 1948 1949

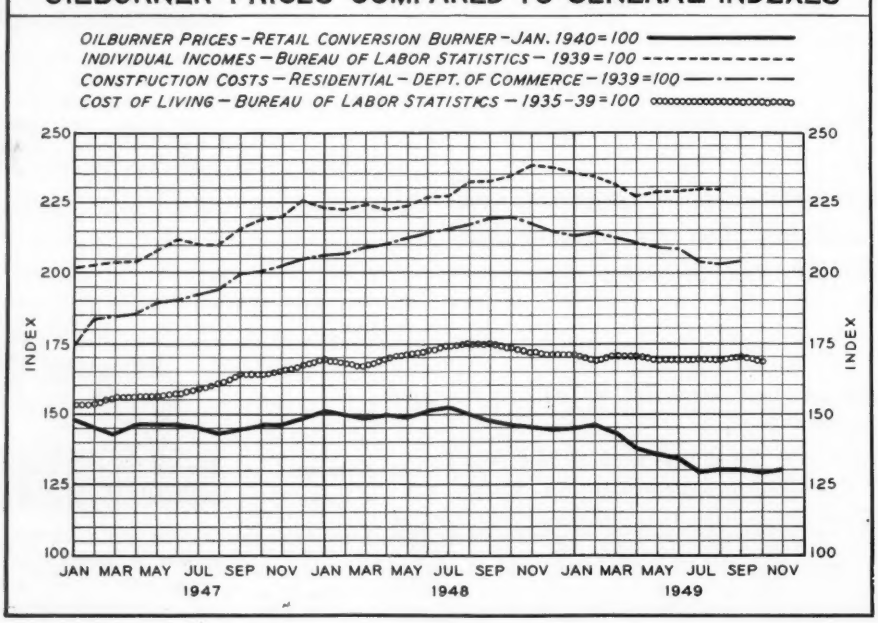
November Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
November Aver.	$314	$662	$574
October Aver.	315	669	573

Price Index: Conversion Burners: January 1940 is 100%

	WHOLESALE				RETAIL			
November	128.2	Six months ago	131.6	November	130.0	Six months ago	134.6
October	128.1	Year ago	144.3	October	128.9	Year ago	144.7

OILBURNER PRICES COMPARED TO GENERAL INDEXES


OILBURNER PRICES – RETAIL CONVERSION BURNER – JAN. 1940 = 100
INDIVIDUAL INCOMES – BUREAU OF LABOR STATISTICS – 1939 = 100
CONSTRUCTION COSTS – RESIDENTIAL – DEPT. OF COMMERCE – 1939 = 100
COST OF LIVING – BUREAU OF LABOR STATISTICS – 1935-39 = 100
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JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV
1947 1948 1949

Oilheating Trends

ESTIMATED INSTALLATIONS of domestic oilburners and units in November were 55,919, or 23% above the 45,563 installed in November last year. Total estimated installations for eleven months ending with November were 536,928, compared with 415,137, a rise of 29.3%.

November installations were divided: New homes 17,447; Replacements of old oilburners 7,996; Conversions from other fuels 30,476. For the eleven months ending with November the division was: New homes 161,406; Replacements of old oilburners 70,605; Conversions from other fuels 304,917.

Burner Stocks: Dealer stocks of domestic burners and units at the end of November have dropped to approximately 53,263, the lowest point of the year. The steel strike had retarded a few factory shipments to dealers and then of course, with the peak season passed dealers normally reduce inventories. Factory stocks at the end of September, the latest available data, were 35,918.

Steel Strike Effect: It was generally recognized that the steel strike held up the completion of some installations in November because dealers mentioned it in several instances. However, in measuring this situation based on reports from all cooperating dealers this month it appears that the overall effect of the steel shortage was a reduction of only about 1,813 jobs from the November installation totals. These jobs were held up due to shortage of heating units or tanks or piping. In any event the impact on our industry of the steel strike was not serious.

Some dealers had reported that as a result of the strike the prices of oil tanks went up sharply. Apparently this was a short flurry since dealers at the end of November, country wide, were paying for 275 gallon tanks an average of $28.11. By areas, the average prices were New England $26.23; Mid-Atlantic $28.92; Midwest $25.88; Pacific Northwest $35.30. In the list of prices there was one as high as $50, another $40, and one $38. The large majority of dealers however were paying near normal prices.

Asked if they believe that before the end of the year all shortages would be

cleared up, only 76% of the dealers voted yes on this question; the other 24% expect their supply troubles to bother them into the new year. That would indicate that the number of installations in December that are delayed in completion by the shortages may be as high as those of November.

Burner Swapping: An oil refiner making inquiries about the extraordinary drop in demand for kerosene and No. 1 oil was told by another industry man that a great many pot-type burners were being taken out and replaced with pressure burners. The refiner asked if we would make a check on this. Based on the experience of the reporting dealers it appears that during the first eleven months of this year approximately 8,771 pot type central heating burners were replaced by pressure burners. During the same period approximately 1,372 pressure burners were replaced by pot type. These figures show that in the general replacement activity of the industry the swapping of either of these types for the other was relatively insignificant.

Winter Sales Outlook: There has been some belief among manufacturers that burner sales this winter will hold up better than the normal seasonal pattern. Asked how they expect their own sales to be during the months of December, January, and February, 4% of the reporting dealers vote excellent; 35% good; 52% fair; and 9% poor.

90-DAY SALES OUTLOOK

	New Eng.	Mid Atl	Mid West	Pac. N.W.	All Sec.
Excellent	17	..	..	..	4
Good	42	33	34	33	35
Fair	41	56	56	49	52
Poor	..	11	10	18	9

It is interesting to notice that New England is decidedly optimistic while the other three general sections average pretty much the same at a somewhat lower level of enthusiasm. In general, these figures substantiate the belief that winter sales will be better than seasonal.

Fueloil Quality: Because there has been less complaint from dealers in recent months about burner service calls due to oil troubles, it was generally believed that the quality of heating oil had been considerably improved since the short supply months of 1947. No doubt there has been some gain in that direction but not nearly all oilheating dealers are satisfied with today's product. Country wide, 71% of those reporting say that the quality of fueloil is now satisfactory while the other 29% say that that is not true in their experience. There is some geographic variation as would be expected. From New England, 64% of those reporting are satisfied; from the Mid-Atlantic states 76%; from the Midwest 75%; from the Pacific Northwest 51%.

It is clear that there remains a wide diversity in the characteristics of distillate heating oils being brought into the

(*Continued on page 158*)

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
November		11 MONTHS			November		11 MONTHS	
1949	1948	1949	1948		1949	1948	1949	1948
48	..	598	..	Albany, N. Y.	..	..	..	..
900	676	5626	1897	Baltimore, Md.	..	130	..	3540
..	..	..	..	Binghamton, N. Y.	11	10	103	138
..	..	..	..	Bloomfield, N. J.	5	5	79	87
..	..	..	..	Boston, Mass.	21	18	325	288
73	135	973	911	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	40	26	404	311
..	..	..	..	Des Moines, Ia.	119	53	1169	876
..	1775	..	..	Detroit, Mich.	983	260	11169	6424
86	41	536	392	Elizabeth, N. J.	5	1	52	21
53	39	344	..	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	30	20	210	257
..	..	..	..	Hackensack, N. J.	2	0	54	42
81	119	965	1276	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
28	25	317	184	Irvington, N. J.	6	3	25	47
..	..	..	..	Lynn, Mass.	16	5	196	159
71	43	334	..	Meriden, Conn.	..	..	..	..
408	230	3504	1948	Milwaukee, Wisc.	311	148	2115	1698
182	156	1094	1175	Minneapolis, Minn.	263	111	1743	1272
20	11	251	210	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	..	..	..	..
50	28	420	245	Mt. Vernon, N. Y.	..	..	..	..
..	125	..	..	Newark, N. J.	..	..	..	..
36	87	655	751	New Bedford, Mass.	..	..	..	..
112	64	701	..	New Haven, Conn.	..	..	..	..
..	0	..	0	New Orleans, La.	..	..	..	..
36	13	308	134	New Rochelle, N. Y.	8	7	48	98
3223	..	13725	..	New York City (Total)	..	..	..	..
2499	..	41,494	..	Brooklyn-Queens	..	..	..	..
724	..	5609	..	Manhattan, Bronx, Rchd	..	..	..	..
716	113	1800	1236	Norfolk, Va.	190	36	756	550
..	0	..	11	Oakland, Calif.	..	..	..	..
124	78	1575	944	Omaha, Nebr.	90	29	670	641
22	9	200	158	Orange, N. J.	0	3	7	15
21	14	301	235	Passaic, N. J.	..	..	..	..
43	43	725	502	Paterson, N. J.	8	6	112	102
1769	774	9787	5876	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	13	8	135	92
43	29	378	346	Portland, Me.	12	8	128	144
409	110	5942	4730	Portland, Ore.	165	..	1870	..
41	23	250	191	Poughkeepsie, N. Y.	..	..	..	..
74	64	624	569	Providence, R. I.	19	12	173	175
..	..	..	..	Reading, Pa.	6	4	62	40
199	46	971	720	Richmond, Va.	41	28	635	847
234	125	2301	1526	Rochester, N. Y.	..	..	..	..
34	45	265	304	Rockville Center, N. Y.	13	7	100	197
67	41	338	245	Salem, Mass.	4	6	91	113
63	121	733	1565	St. Louis, Mo.	76	30	555	448
234	230	2043	1453	St. Paul, Minn.	103	62	763	..
72	97	486	687	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	152	89	1537	..
..	..	..	..	Springfield, Mass.	74	20	491	483
80	67	506	418	Stamford, Conn.	..	..	..	..
30	..	638	..	Syracuse, N. Y.	42	..	328	..
..	..	..	..	Trenton, N. J.	0	2	68	31
..	..	..	..	Utica, N. Y.	8	18	84	128
142	183	1300	1579	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	27	9	183	145
25	27	259	210	White Plains, N. Y.	8	3	103	69
125	133	1092	940	Wilmington, Dela.	4	8	102	110
161	..	..	..	Worcester, Mass.	..	..	..	..
93	13	617	291	Yonkers, N. Y.	..	..	..	..
6766	4052	47142	33848	*Totals*	2666	1050	22147	16048
+67.0		+39.3		*Percent Change*	+153.9		+38.0	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

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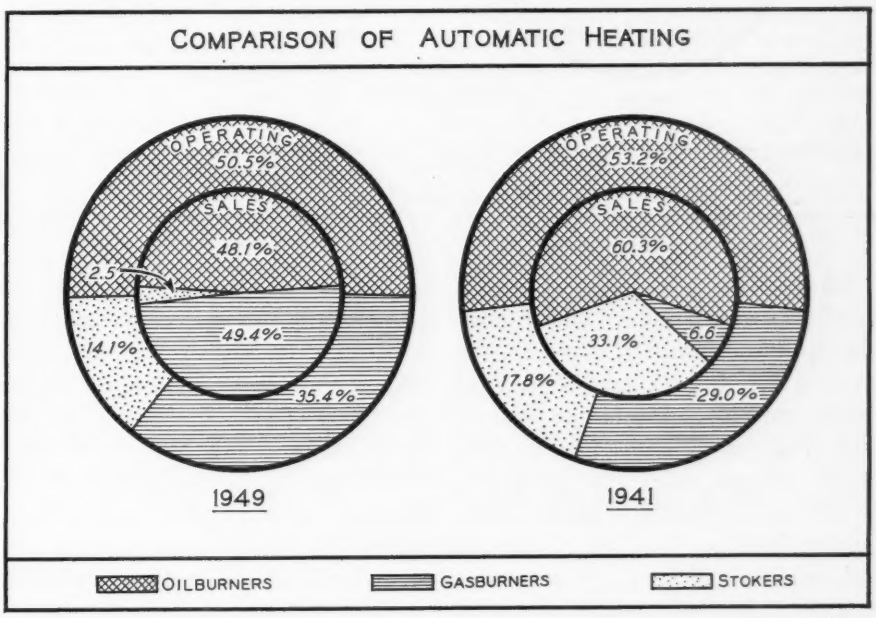
Back in the Groove

Industry Has Second Best Year with Restrictions Gone

OPERATING in the first really "normal" postwar year, unrestricted by either shortages in equipment or fuel, the domestic oilburner industry upped installations an estimated 25.4% over 1948 for a total of 570,593 central heating jobs. Domestic oilfired equipment operating at the end of the year had increased 11.2% to 4,449,916 installations. The year 1949 was the second best year the industry has ever had, being topped only by the record high of 888,083 installations in 1947.

Additions to total burners operating accounted for 83.1% of the year's installations, or an increase of 474,143 installations. Former oilheating installations lost during the year totaled 38,250—of which 30,275 were lost to gas—and 58,200 of the 1949 installations were to replace old oilburners.

A normalizing influence during the year was the return of active gas competition in most areas of the country. Restrictions on gas house heating were lifted wholly or in part in most areas where oil is popular. This brought on sharp competition in those areas where gas had a price advantage. One result was a drop in both the number and percentage of oilburners used in new homes. From 190,719 installations in new buildings, or 41.9% in 1948, this type of installation took only 172,320 oilburners last year, accounting for only 30.2% of all burners. This compares with the 152,749, or 32.2% of all burners in 1947.



Replacement of handfiring took 305,266 or 53.5% of total installations, and 29,666 representing 5.2% were used to replace stokers and sawdust burners. There were 5,141 gasburners replaced by oil during the year, or 0.9% of all burners used.

Oilfired installations now represent almost exactly half of the total automatic heating installations. Gasheating actually outsold oil last year for the second time in the record, and increased its share of the total automatic heating jobs at the expense of oil and stokers. Stokers actually lost ground during the year, there being more replaced than sold. The table shows the percentage of the total automatic heating market each of the fuels held at the end of each of the last three years.

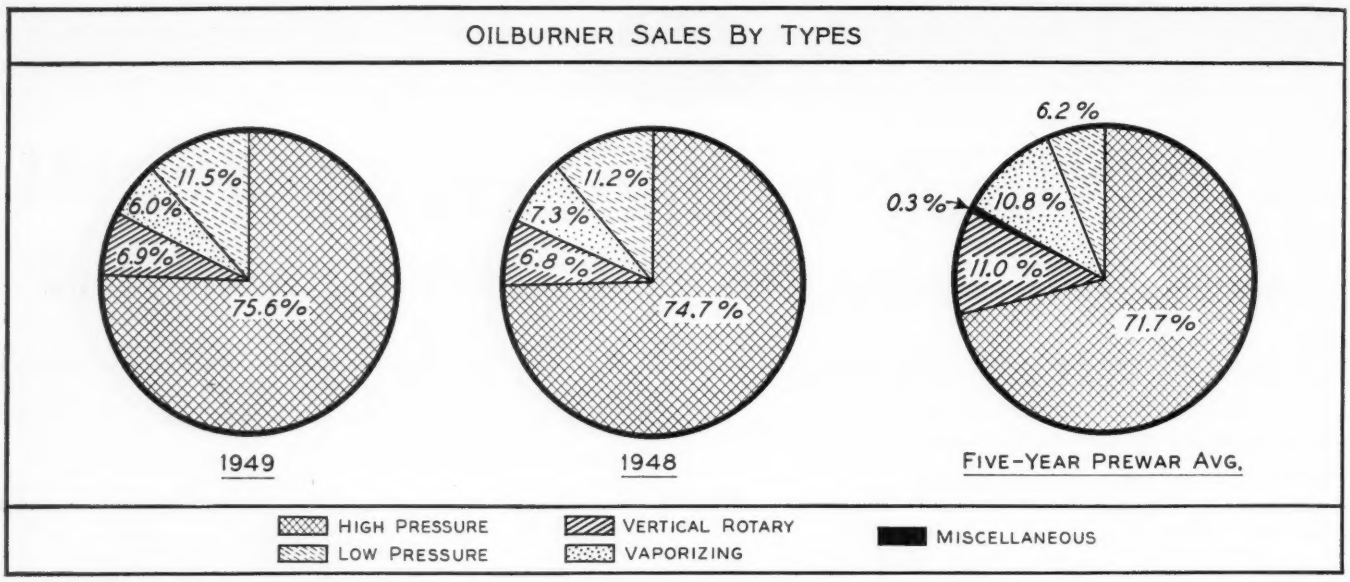
Operating 12/31/49		*1949 %*	*1948 %*	*1947 %*
4,449,916	Oilburners	50.5	51.3	51.2
3,118,660	Gasburners	35.4	32.8	32.2
1,235,560	Stokers	14.1	15.9	16.6

TABLE 1

TOTAL DOMESTIC BURNERS AND UNITS

Sales	*Retail Value*	*Factory Value*	*Year*	*No. in Use (End of Year)*
126,400	.....	.....	1930	648,500
104,000	.....	.....	1931	747,300
89,200	.....	.....	1932	831,120
88,600	.....	.....	1933	914,280
108,290	.....	.....	1934	1,012,870
150,510	$55,342,500	.....	1935	1,152,125
220,075	74,054,700	.....	1936	1,340,675
210,740	69,265,100	$22,238,200	1937	1,530,545
179,360	54,583,900	18,292,900	1938	1,667,745
236,140	66,520,400	23,352,200	1939	1,862,330
302,210	89,548,800	32,273,600	1940	2,135,125
333,250	113,546,400	41,931,800	1941	2,402,060
99,514	29,871,600	14,067,900	1942	2,386,290
33,445	5,283,300	5,431,000	1943	2,375,455
49,915	17,988,300	7,652,000	1944	2,392,265
145,596	49,245,200	17,845,400	1945	2,517,055
492,593	211,448,000	79,007,100	1946	2,821,044
888,083	418,178,500	156,759,900	1947	3,650,514
455,245	237,385,500	84,114,100	1948*	3,975,773
570,593	243,982,300	95,296,400	1949	4,449,916

*Revised



Oil lost its sales leadership to gas last year by a slight margin. Of all automatic heating installations in 1949 oil accounted for 48.1%; gas 49.4%, and stokers got only 2.5% of the business. This compares with 56.7% oil in 1948, 33.8% for gas and 9.5% for stokers. In 1941 oil got 60.3% of the automatic heating business, gas got 6.6% and stokers accounted for 33.1%.

Table 1 shows the annual sales of all domestic oilburners and units since 1930, together with the wholesale and retail values and the number operating at the end of each year. Total oilheating installations last year were up 25.4% over 1948, but retail prices were down so that customers paid only 2.8% more for 570,593 installations than they did for 455,245 in 1948. Wholesale value also was up less than the physical volume of equipment, though the difference is less. The more than 95 million dollars paid for 1949 equipment at the factory was 13.3% more than in 1948. The 4,449,916 burners and units in use at the end of the year were 11.9% more than at the end of 1948.

Oilburner Types

There was no significant change during the year in the types of burners used, though the trend toward high pressure equipment seems to be sustained. The 431,368 high pressure burners used last year were 75.6% of the total against 74.7% in 1948. Low pressure equipment installations at 65,618 also represented a slight increase to 11.5% of the total from 11.2% in the year before, and vertical rotary installations increased to 39,371, or 6.9% of 1949 volume from 6.8% in 1948. The drop in vaporizing equipment probably is due to the smaller percentage of oilburners going into new homes last year. Vaporizing installations in 1949 totaled 34,236 against 33,583 in the year before, but this volume represented only 6% of last year's sales contrasted with 7.3% in 1948. A breakdown by types of oilburners used during the last two years and in the five-year prewar period is shown in the table.

1949 No.	1949 %		1948 %	Prewar Avg. %
431,368	75.6	High Press.	74.7	71.7
65,618	11.5	Low Press.	11.2	6.2
39,371	6.9	Vert. Rot.	6.8	11.0
34,236	6.0	Vaporizing	7.3	10.8

Both retail and wholesale prices for oilburning equipment softened during the year, though the retail prices generally were weaker than factory prices. For easy comparison prices have been gathered for a conversion installation with a single basement tank. Retail prices for high pressure burners were off 14.6% for the year to $333, though the factory price declined only 8.5% to $97.

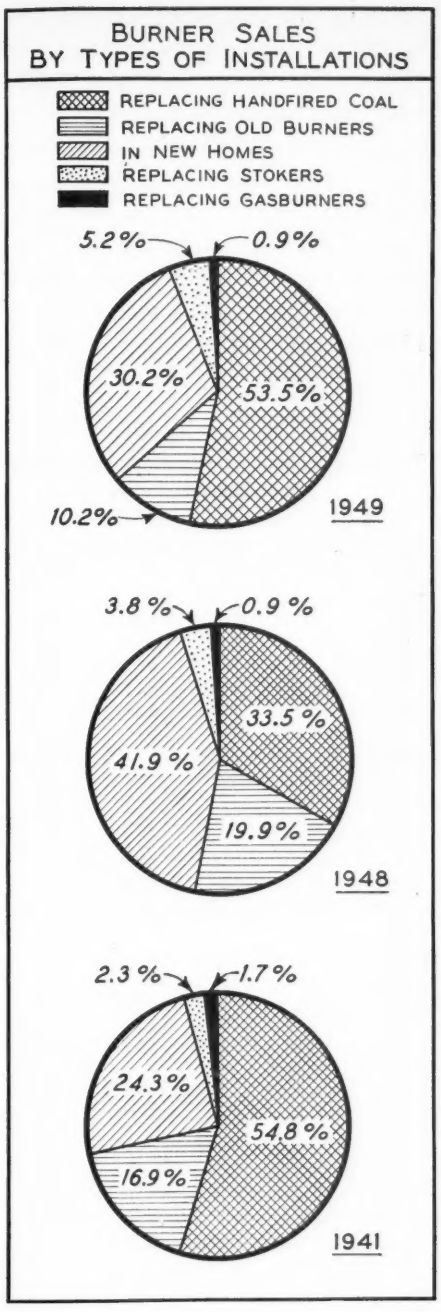
RETAIL 1949	RETAIL 1948		WHOLESALE 1949	WHOLESALE 1948
$333	$390	High Press.	$ 97	$106
397	481	Low Press.	136	155
409	444	Vert. Rotary	135	148

Low pressure burner prices were off more sharply, probably due to some dumping during the year. The average conversion low pressure job was down 17.4% at retail, while the average factory price was off 12.3% to $136. Vertical rotary equipment prices were more stable, retail prices being off 7.9% to $409, and the wholesale price off 8.8% to $135. The retail and wholesale prices in dollars for 1948 and 1949 are shown in the table.

How Burners Were Used

Conversion of handfired heating plants demanded 305,266 oilburner installations of the 1949 total, or 53.5%, against 152,749, or 33.5% in 1948. This use again became the largest of the oilburner applications last year, though it was second to new home heating in 1948. New homes got 172,320 or 30.2% of 1949 installations, against 190,719 or 41.9% in 1948.

Only 58,200 old oilburners were replaced in 1949, representing 10.2% of all the installations. This compares with 90,750 or 19.9% of the 1948 jobs. The unusually high proportion of oilburner replacements in 1948 is believed due to the fueloil shortage scare during a large part of the year. With this influence gone in 1949, replacements dropped back more nearly comparable with the 58,613 replacements of 1947. Stokers replaced by oilburners last year totaled 29,666 or 5.2% of all installations. This is up from the 16,856 or 3.8% of burners used to replace stokers in 1948. Total Class 1 and Class 2 stokers sales last year were only slightly above the number oilburners replaced. Gasburner replacements held the 0.9% position of the year before, though the number rose from 4,171 to 5,141. Gas replacements were chiefly along the Atlantic seaboard and in the Northwest.



Oilheating losses to other fuels in 1949 were slightly less than in the year before (38,250 against 40,950), though gas showed a slight increase in total number of conversions. Next to gas, the industry's chief competitor is electricity. Though it is not believed that the heat pump has been sold in any great volume, electrically heated radiant panels are making a bid for business. The table shows the oilheating losses to other fuels in the last two years.

Oilheating Installations

	1949	1948
Lost to gas	30,275	29,743
Lost to electricity	5,079	1,105
Lost to stokers	780	4,938
Lost to handfiring	2,116	5,164
	38,250	40,950

TABLE 2

DOMESTIC CONVERSION OILBURNERS

Sales	*Retail Value*	*Factory Value*	*Year*	*No. in Use (End of Year)*
126,400	$79,400,000	$24,648,000	1930	648,500
104,000	50,310,000	16,640,000	1931	747,300
86,200	36,911,000	12,068,000	1932	827,320
80,800	31,263,000	10,423,000	1933	902,680
98,990	33,116,000	11,681,000	1934	991,980
136,825	43,373,500	13,408,900	1935	1,115,125
197,430	59,229,000	18,558,400	1936	1,281,305
184,920	54,181,600	15,903,100	1937	1,446,295
153,850	40,462,600	12,154,200	1938	1,559,675
200,020	48,004,800	15,601,600	1939	1,719,940
238,845	55,645,900	18,152,200	1940	1,933,605
237,965	59,490,200	19,275,200	1941	2,113,160
71,658	16,552,700	6,090,900	1942	2,073,260
21,363	1,885,800	1,837,200	1943	2,060,465
37,885	10,607,800	4,184,600	1944	2,072,445
119,680	34,292,200	11,249,900	1945	2,173,910
408,861	151,258,100	48,625,800	1946	2,397,554
669,615	262,489,000	83,701,900	1947	3,020,741
312,170	131,735,700	36,523,900	1948*	3,208,365
409,095	144,001,400	43,773,200	1949	3,538,881

*Revised

Kinds of Oilheating Equipment

The fewer oilheating installations used in new homes during 1949—possibly due to increasing publicity on gas line expansion and the arrival of natural gas in many areas not previously served—is believed to account for the smaller percentage of oilfired furnace units in the total. Integral furnace-burner units used last year increased 9.8% over 1948 to 110,145, though the percentage of these units in the year's total declined from 21.9% to 19.3%.

Prewar %		*1949 %*	*1948 %*	*1947 %*
80.5	Conversion Burners	71.7	68.7	75.4
9.1	Boiler-Burn. Units	9.0	9.4	7.1
10.4	Furnace-Burn. Units	19.3	21.9	17.5

Boiler-burner units also increased 20% in volume over 1948, but dropped four points in percentage of total oilfired equipment installed. Only conversion burners (up 27.8% over 1948) showed an increase in its share of the 1949 total. The table shows the percentage of conversion burners and units in the total annual installations for the last three years as well as the prewar average.

Domestic Conversion Burners

Table 2 shows the annual sales, retail value, wholesale value and the number of conversion burners operating at the end of each of the last 20 years. The

Oilburner Replacements

Number	*Year*	*%*
40,936	1940	15.2
56,315	1941	16.9
33,170	1942	33.3
13,910	1943	41.6
38,280	1944	76.7
29,847	1945	20.5
36,540	1946	8.0
58,613	1947	6.6
90,750	1948	19.9
58,200	1949	10.2

409,095 conversion burners used last year was the second largest volume in the history of the industry, being exceeded only by the record volume of 1947. Retail value of conversion burners was up 9.3% to $144,001,400, but factory value increased 19.8% to $43,773,200. Conversion burners operating at the end of the year had increased 10.3% to 3,538,881.

Not all conversion burners are used in old or existing heating plants. In addition to the integral, factory assembled boiler and furnace units, dealers last year used 73,662 conversion burners with new boilers to make field-assembled boiler units. In the same way, dealers used 91,667 new warm air furnaces with conversion burners to make field assembled furnace units. These dealer-assembled units are not shown in the boiler and furnace unit figures. Those figures are for factory-assembled units only.

Average retail price of conversion burner installations last year was off 16.6% to $352 from the $422 average

Table 5. Conversion Burner Price Trends

RETAIL Average	% change prev. yr.	Aver. Min.	% change prev. yr.		FACTORY Average	% change prev. yr.	Aver. Min.	% change prev. yr.
$692	..	$554	..	1929	$240	..	..	..
629	— 9.1	516	— 6.8	1930	195	—18.7	..	..
495	—21.3	413	—19.9	1931	160	—18.0	..	..
438	—11.5	371	—10.1	1932	140	—12.5	..	..
395	— 9.8	341	— 8.1	1933	129	— 7.8	$109	..
341	—13.6	310	— 9.0	1934	118	— 8.5	99	— 9.1
317	— 7.0	275	—11.2	1935	98	—16.9	88	—11.1
300	— 5.3	266	— 3.2	1936	94	— 4.1	85	— 3.4
293	— 2.3	255	— 2.6	1937	86	— 8.5	82	— 3.5
263	—10.2	236	— 7.4	1938	79	— 8.1	76	— 7.3
240	— 8.7	218	— 7.6	1939	78	— 1.3	69	— 9.2
233	— 2.9	210	— 3.7	1940	76	— 2.6	63	— 8.7
250	+ 7.2	226	+ 7.6	1941	81	+ 6.9	65	+ 3.2
267	+ 6.8	245	+ 8.4	1942	85	+ 4.9	73	+12.3
276	+ 3.3	247	+ 0.9	1943	86	+ 1.2	76	+ 4.1
280	+ 1.4	258	+ 4.7	1944	98	+13.9	78	+ 2.6
313	+11.8	292	+13.2	1945	94	— 4.1	84	+ 7.7
370	+18.2	294	+ 0.7	1946	119	+26.6	90	+ 7.1
392	+ 6.0	353	+20.1	1947	125	+ 5.0	107	+18.9
422	+ 7.6	349	— 1.1	1948	117	— 6.4	101	— 5.6
352	—16.6	329	— 5.7	1949	107	—14.5	97	— 4.0

of 1948. Average minimum price lines dropped only 5.7% during 1949 to an average of $329.

Average factory price for conversion burners was off 14.5% to $107, though the minimum price lines declined only 4% to $97. Detail of price changes, both wholesale and retail, are shown for each year since 1929 in Table 5.

The average price for an oilburner replacement dropped 11.1% last year to $265 from the record high of $298 in the year before. This decline is slightly more than the average retail price drop, but replacements in 1949 sold for 75.3% of the average conversion, contrasted with 70.6% in 1948 and 74.2% in 1947.

Conversion Burner Price By Size of Tank

	One 275	*Two 275s*	*550*	*1000*
New Eng.	$331	$388	$423	$524
Mid Atl.	354	420	460	571
South	375	421	453	547
Mid West	363	425	459	530
Pacific	342	383	413	500
Total U. S.	346	416	449	548

Size of the tank with which the burner is installed governs to some degree the price of the conversion installation. Dealers were asked this year to show their average prices for a conversion installation with one 275-gal. tank, two 275's, a 550 and a 1000-gal. tank. Averages by areas are shown in the accompanying table.

Complete Boiler-Burner Units

There were 51,252 integral, factory-assembled boiler-burner units installed last year, an increase of 20% from 1948. Retail value of all boiler units was up only 1.1% for the year, due to decrease of 15.7% in the average price. Factory value of these units was 10.7% above 1948. The 364,630 units operating at the end of the year was 12.6% greater than at the end of 1948. Detailed figures on annual sales, retail and wholesale value and boiler units operating at the end of each year are shown in Table 3. Average retail and factory prices are shown in Table 6. With boiler units as in other classes of equipment, retail prices declined more sharply than factory prices. The average retail price of boiler units dropped 15.7% during the year while wholesale prices declined only 6.7%.

Total boiler output for all fuels was off 16.1% last year compared with 1948. Cast iron boiler production was down 20% and steel boilers were off 8%. The number of oil-designed boilers in the total represented 54.5% last year against 52.9% in the year before. Oilfired steel boilers were 87.8% of total steel boiler output, and cast iron boilers for oil accounted for 35% of all cast iron boilers. Figures on total boilers produced since 1935 and the number and percentage for oil are shown in Table 7.

Table 6. Prices of Factory-Assembled Boiler-Burner Units

RETAIL Average	% change prev. yr.		Aver. Min.	% change prev. yr.
$905	..	1935	$723	..
651	—28.0	1936	566	—21.7
593	— 8.9	1937	516	— 8.8
554	— 6.5	1938	482	— 6.6
507	— 8.3	1939	441	— 8.5
495	— 2.4	1940	365	—17.2
547	+11.5	1941	378	+ 3.6
568	+ 3.8	1942	473	+25.1
533	— 6.2	1943	361	—23.7
607	+13.9	1944	450	+24.6
663	+ 9.2	1945	539	+19.8
770	+16.1	1946	589	+ 9.3
835	+ 8.4	1947	691	+17.3
941	+12.7	1948	710	+ 2.7
793	—15.7	1949	682	— 4.0
FACTORY				
$263	..	1937	$246	..
261	— 0.7	1938	244	— 0.8
223	—14.5	1939	208	—14.7
215	— 3.6	1940	183	—12.0
243	+13.0	1941	201	+ 9.9
309	+27.1	1942	229	+13.4
315	+ 2.0	1943	231	+ 1.0
311	— 1.3	1944	216	— 6.5
276	—11.2	1945	233	+ 7.9
351	+27.2	1946	267	+14.6
365	+ 4.0	1947	310	+16.1
388	+ 6.3	1948	345	+11.3
362	— 6.7	1949	342	— 0.9

TABLE 3
INTEGRAL BOILER-BURNER UNITS

Sales	*Retail Value*	*Factory Value*	*Year*	*No. in Use (End of Year)*
3,000	.....	.....	1932	3,800
7,800	.....	.....	1933	11,600
9,300	.....	.....	1934	20,890
10,510	$9,511,600	.....	1935	31,400
15,025	9,781,300	.....	1936	46,250
14,430	8,557,000	$3,795,100	1937	60,240
14,220	7,877,900	3,711,400	1938	73,930
19,220	9,744,500	4,286,100	1939	92,540
26,955	13,322,700	5,005,300	1940	118,560
39,990	21,874,500	9,717,600	1941	155,720
9,313	5,289,800	2,877,700	1942	163,040
6,637	1,705,600	2,090,600	1943	164,240
6,440	3,909,100	2,002,800	1944	167,040
9,027	5,984,900	2,491,500	1945	175,165
45,130	34,765,900	18,088,100	1946	219,131
63,054	52,650,000	23,014,700	1947	277,771
42,785	40,260,700	16,600,600	1948	318,417
51,353	40,722,900	18,589,800	1949	364,630

Table 7. Heating Boiler Sales

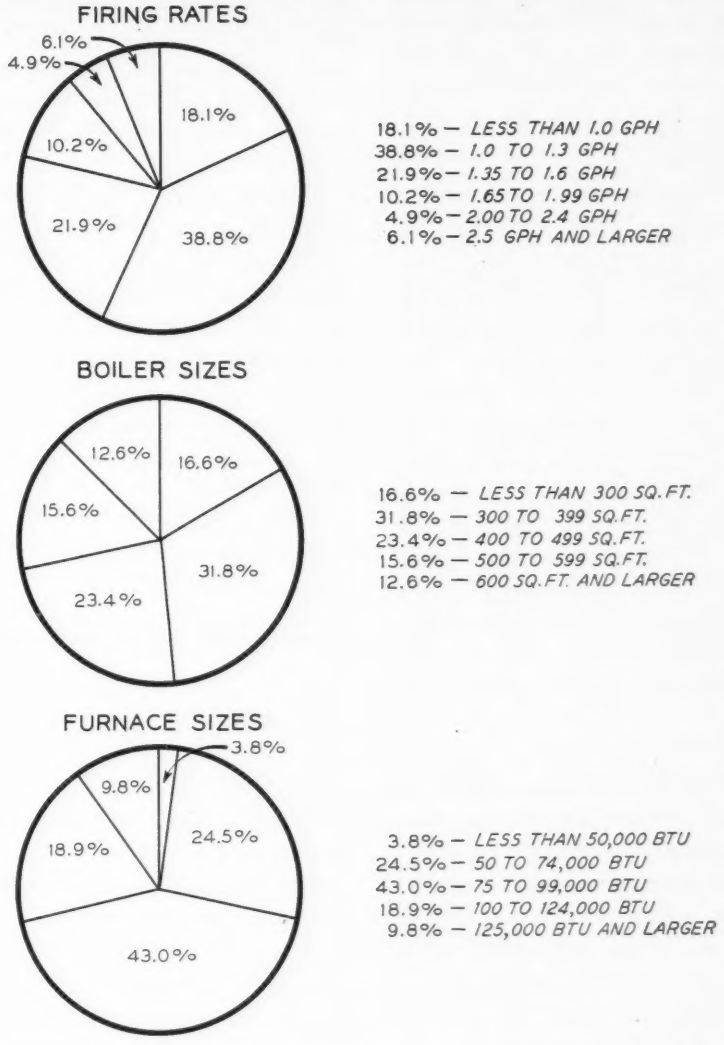
	Total Output	No. for oil	% for oil
CAST IRON			
1935	160,105	29,310	18.3
1936	186,560	41,922	22.5
1937	169,707	58,462	34.2
1938	135,282	54,139	40.0
1939	146,919	61,070	41.6
1940	168,839	77,764	46.1
1941	178,076	80,176	45.0
1942	111,875	10,765	9.6
1943	81,500	8,852	10.9
1944	75,760	19,140	25.3
1945	66,740	20,088	30.1
1946	161,667	46,548	28.8
1947*	233,905	73,279	31.3
1948*	180,345	61,781	34.3
1949	144,275	50,495	35.0
STEEL			
1935	14,415	14,181	98.1
1936	19,242	18,622	96.8
1937	16,569	15,321	92.7
1938	19,098	17,218	90.3
1939	23,658	21,857	92.4
1940	24,580	23,206	94.5
1941	25,666	24,173	94.2
1942	13,000	7,238	55.7
1943	3,550	1,230	34.7
1944	3,310	2,168	65.5
1945	16,008	10,979	68.6
1946	34,820	33,777	97.0
1947*	105,714	94,123	89.0
1948*	92,718	82,716	89.2
1949	84,876	74,520	87.8

*Revised

Dealers were asked this year to show the sizes of all oilfired boilers they installed. The returns indicated that 16.6% were rated at less than 300 sq. ft. of net steam; 31.8% were between 300 and 399 sq. ft.; 23.4% were rated at 400 to 499; 15.6% were for 500 to 599; and 12.6% had a capacity of 600 sq. ft. of standing steam radiation or larger.

The accompanying table shows the number and type of dealer-assembled boiler units used in the last eight years.

SIZE OF 1949 OILFIRED INSTALLATIONS



Last year there were 43% more boiler units assembled by dealers in the field than shipped complete from the factory. In most years the dealers use many more home-made units than integral units shipped complete from the manufacturer. Average dealer cost of the field-assembled boiler units in 1949 was only little more than 8% under the complete units. Dealers paid an average of $333 for separate burners and boilers, against $362 for complete boiler units.

Dealer-Assembled Boiler Units

Cast Iron		Steel	Total
7,039	1942	1,651	8,690
2,240	1943	595	2,835
13,377	1944	1,491	14,868
18,734	1945	3,306	22,040
29,658	1946	5,537	35,195
87,957	1947	17,391	104,348
67,817	1948	32,895	101,712
44,932	1949	28,730	73,662

TABLE 4
INTEGRAL FURNACE-BURNER UNITS

Sales	Retail Value	Factory Value	Year	No. in Use (End of Year)
3,175	$2,457,400	.....	1935	5,600
7,620	5,044,400	.....	1936	13,120
11,390	6,526,500	$2,540,000	1937	24,010
11,290	6,243,400	2,427,300	1938	34,140
16,900	8,771,100	3,464,500	1939	49,850
36,410	19,115,300	7,646,100	1940	82,960
55,295	32,181,700	12,939,000	1941	133,180
18,543	8,029,100	5,099,300	1942	149,990
5,445	1,691,900	1,503,200	1943	150,750
5,590	3,471,400	1,464,600	1944	152,780
16,889	8,968,100	4,104,000	1945	167,980
38,602	25,429,000	12,293,200	1946	204,359
155,414	103,039,500	50,043,300	1947	352,002
100,290	65,389,100	30,989,600	1948	447,277
110,145	59,258,000	32,933,400	1949	546,405

Complete Furnace-Burner Units

There were an estimated 110,145 complete furnace-burner units installed last year, an increase of 9.8% over 1948. Retail value, however, declined 9.4% during the year on an average price de-

Table 8. Price Trends of Factory-Assembled Forced-Air Units

Average	% change prev. yr.		Aver. Min.	% change prev. yr.
		RETAIL		
$774	..	1935	$642	..
662	—14.4	1936	576	—10.2
573	—13.4	1937	499	—13.3
553	— 3.5	1938	481	— 3.4
519	— 6.2	1939	402	—16.4
525	+ 1.2	1940	360	—10.4
582	+10.9	1941	402	+11.7
611	+ 4.9	1942	413	+ 2.7
613	+ 0.3	1943	418	+ 1.2
621	+ 1.3	1944	434	+ 3.8
531	—14.5	1945	479	+10.4
659	+24.1	1946	526	+ 9.8
663	+ 0.6	1947	610	+15.9
652	— 1.7	1948	623	+21.3
538	—17.5	1949	583	— 6.4
		FACTORY		
$223	..	1937	$210	..
215	— 3.6	1938	204	— 2.8
205	— 4.7	1939	198	— 2.9
210	+ 2.4	1940	196	— 2.0
234	+11.4	1941	201	+ 2.5
275	+17.5	1942	236	+17.4
276	+ 0.4	1943	241	+ 2.1
262	— 5.1	1944	217	— 9.9
243	— 7.3	1945	239	+10.1
318	+30.9	1946	265	+10.9
322	+ 1.3	1947	297	+12.1
309	— 4.0	1948	304	+ 2.3
299	— 3.2	1949	297	— 2.3

cline of 17.5%. Factory value of furnace units was up 5.9% for the year, though the average price dropped 3.2% to $299. Furnace units operating at the end of the year increased 18.1% to 546,405. Figures on annual sales, retail and factory value, and units operating at the end of each year since 1935 are given in Table 4, and price trends of factory-assembled forced air units are shown in Table 8.

Of the 695,905 total furnaces produced last year, oil-designed equipment amounted to 201,012, or 29%. This compares with 190,887 oilfired furnaces, or 24.5% of the 777,131 total furnaces in 1948. Forced air equipment was 93.4% of the total oilfired furnaces last year, compared to 94.3% in 1948.

As with other equipment, dealers were asked to show the furnace sizes they installed by bonnet capacity. More than 71% of the oilfired equipment was under 100,000 Btu capacity. Equipment of less than 50,000 Btu represented 3.8% of the total; 50,000 to 74,000 took 24.5%; and furnaces between 75,000 and 99,000 Btu represented 43%. There were 18.9% of the furnaces between 100,000 and 124,000 Btu bonnet capacity, and 9.8% were 125,000 Btu and larger.

In contrast to the nearly 59% of oilfired boiler installations which are field-assembled, only 91,667 or 45.4% of oilfired furnaces were assembled by dealers in the field. Dealers paid an average of $291 for a burner and separate furnace last year compared to only $299 for a complete furnace unit, less than 4% possible saving on the unrelated parts.

Table 9 shows the furnaces shipped for the three fuels by type of air distribution in 1949 and 1948.

Table 9. Warm Air Furnace Shipments

1949	FORCED AIR	1948
34,099	Coal	77,919
188,590	Oil	179,882
192,070	Gas	143,747
	GRAVITY	
189,286	Coal	319,958
13,222	Oil	11,005
78,638	Gas	44,620

Commercial Oilburner Installations

Commercial oilheating installations in 1949 were off 11.3% to 25,220 from 28,433 in 1948. This is the lowest level of activity in commercial oilheating since 1940 when only 20,710 installations were made.

Commercial heating installations operating at the end of the year were up 5.2% to 414,310. For annual sales of commercial equipment and number operating at the end of each year, see Table 10.

Table 10. Commercial Oilheating

Sales		No. Operating (End of year)
14,990	1935	176,240
18,435	1936	192,830
19,380	1937	210,275
13,955	1938	222,880
16,445	1939	237,680
20,710	1940	256,320
34,750	1941	287,595
55,360	1942	293,120
44,470	1943	285,045
30,705	1944	286,680
30,515	1945	288,812
40,498	1946	325,310
48,780	1947	369,210
28,433	1948	393,550
25,220	1949	414,310

Competitive Equipment

Domestic and small commercial stoker sales fell 60.8% from the 1948 level to the lowest point in the last ten years with the single exception of the war year, 1943. Sales of Class 1 (up to 60 pounds of coal an hour) and Class 2 (60 to 100 pounds per hour) stokers are shown in Table 11, broken down into anthracite and bituminous equipment.

Small stokers in use at the end of the year had actually decreased slightly to 1,235,560. Replacements by oil and gas and stoker sales during the year to replace damaged or worn stokers, were greater than new installations.

Gasburners for central heating installation are shown in Table 12. Figures are estimates made by Gas Appliance Manufacturers Association.

Table 11. Domestic and Commercial Stokers

Total Sales		CLASS 1 Bitum.	CLASS 1 Anth.	CLASS 1 Total	CLASS 2 Bitum.	CLASS 2 Anth.	CLASS 2 Total	In Use End Year
144,758	1940	123,167	12,837	136,004	7,784	970	8,754	637,695
182,956	1941	158,734	17,110	175,844	6,513	599	7,112	802,345
79,062	1942	62,753	11,562	75,315	4,391	356	4,747	877,455
17,765	1943	4,460	472	4,932	10,790	2,043	12,833	894,330
31,603	1944	1,714	450	2,164	27,196	2,243	29,439	925,435
119,279	1945	89,522	3,525	93,047	24,349	1,883	26,232	1,029,150
181,223	1946	164,304	7,044	171,348	8,967	908	9,875	1,160,755
61,596	1947	53,372	3,364	56,736	4,469	391	4,860	1,186,195
76,477	1948	61,355	9,504	70,859	4,857	761	5,618	1,238,225
29,994	1949	21,988	4,991	26,979	2,612	403	3,015	1,235,560

Table 12. Domestic Gasburners

Annual Sales: Conversion	Boiler Units	Furnace Units	Total		No. in Use (End of Year)
21,687	10,201	56,666	88,554	1940	1,187,486
36,335	15,007	85,043	136,385	1941	1,310,222
6,087	10,966	29,412	46,465	1942	1,352,040
800	3,485	8,970	13,255	1943	1,363,970
3,180	5,217	12,113	20,510	1944	1,382,430
14,183	14,959	27,676	56,818	1945	1,433,570
400,000	32,500	230,000	662,500	1946	2,027,548
90,000	44,000	188,000	322,000	1947	2,297,000
48,500	30,000	193,000	271,500	1948*	2,538,500
290,000	42,000	260,000	592,000	1949	3,118,660

*Revised

Gasburner sales last year were up 118% over 1948 to 592,000, according to GAMA estimates. A 500% increase in conversion gasburners featured the rise, with boiler units up 40% and furnace units up nearly 35%.

Gasburners operating at the end of the year had increased 22.8% to 3,118,660.

Other Equipment

Oilburner dealers sold 30,990 oilfired space heaters during last year, estimated to be 4.7% of the 661,890 total oil space heaters sold.

Dealers also sold 15,465 water heaters with vaporizing burners and 400 water heaters with mechanical (gun or rotary) burners.

Reported sales of oilfired floor furnaces indicate a sale of 24,700 by oilheating dealers, with an additional 12,500 gasfired floor furnaces also installed.

Summary

With the second best year in the industry's history just past, the industry feels another increase is due for 1950. No restrictions on the sale of oilfired equipment are likely in the foreseeable future. We are operating on a normal basis free of outside influences, other than competition.

Coal competition has virtually disappeared, but gas is going to be increasingly strong. The industry is limited only by its ability and willingness to sell.

Survey Shows Iowa Families Still Prefer to Heat with Oil

OIL STILL IS THE HEATING FUEL most preferred by Iowa families, though it lost nearly two percentage points in popularity in the last two years. During the same period city gas gained more than eight percentage points in preference, according to a survey by the research department of *The Des Moines Register and Tribune*. Fueloil now is the first fuel choice of 42.3% of Iowa's 701,000 families, against 45% in 1947. Gas is preferred by 31.1%, up from 22.8% two years ago, and coal has dropped to 15.9% from 23.4% in 1947. Bottled gas, wood and those who are undecided account for the remaining ballots.

In these same two years fueloil use in Iowa has gained from 17.0% in 1947 to 29.8% in 1949. Gas increased to 10.9% from 7.1% two years before, and coal use dropped from 71.8% in 1947 to 57.7% in 1949.

Equally as important to students of marketing as the first choice ratings of the fuels, are the reasons why. Those who prefer fueloil do so first because it is cleaner (57.8%) and secondly because it is more convenient and easier to operate (55.2%). Only 17.9% believe it is more economical. In contrast gas is preferred because it is cleaner (59.5%) and secondly because it is economical (52.8%). Reasons total more than 100% since more than one reason for their preference were given by some of the people interviewed.

Warm air is the most popular type of heating. Iowa families are warmed 87.6% by warm air; 6.8% by hot water and 3.6% by steam systems. Hot water gains in popularity when the families are asked "What would be your first choice" if you were buying a new heating plant. Warm air is preferred by 65.4%; hot water by 21.7% and steam plants by 8.4% of the families.

Brands Little Known

The Des Moines Register and Tribune survey shows little familiarity with brand names of heating equipment. One control manufacturer was known to 57.4% of the families, and the second best known manufacturer was known to only 6.1%. Of 59 oilburner names Iowans knew, the leader got 18.1%, two 12.7% and another 12.0%.

Three brand names of warm air furnaces each were known to more than 25% of Iowa families, but the fourth was known to only 5.3%. Three oilfired space heater manufacturers ranked 33%, 12.9% and 12.5% in recognition out of 66 names mentioned.

The accompanying tables show the type of fuel used, the type that would be "First Choice" in the future, and the reasons for that first choice.

"WHAT KIND OF FUEL IS USED TO HEAT YOUR HOME?"

	TOTAL		CITY		TOWN		FARM	
	1947	1949	1947	1949	1947	1949	1947	1949
Coal	71.8%	57.7%	71.1%	53.5%	71.9%	61.8%	72.8%	61.9%
City gas	7.1	10.9	12.2	18.8	6.1	6.9	.3	1.2
Bottled gas	.5	1.2	.2	.4	.6	2.9	.7	1.2
Oil	17.0	29.8	15.8	27.3	19.7	28.4	17.1	34.5
Wood	3.5	.4	.5	..	1.7	..	9.1	1.2
Don't know	.1	..	.2	..	..	..	..	..

"SUPPOSE YOU WERE SELECTING A NEW HEATING PLANT THIS YEAR OR WERE BUILDING A NEW HOUSE, WHAT KIND OF FUEL WOULD BE YOUR FIRST CHOICE? COAL, GAS, OIL OR WOOD?"

	TOTAL		CITY		TOWN		FARM	
	1947	1949	1947	1949	1947	1949	1947	1949
Coal	23.4%	15.9%	19.1%	14.2%	18.5%	20.6%	32.4%	15.8%
City gas	22.8	31.1	37.0	48.7	18.5	22.5	5.2	9.4
Bottled gas	2.1	2.2	.3	..	3.4	3.9	3.9	4.7
Oil	45.0	42.3	36.5	31.0	54.5	43.2	51.2	59.1
Wood	.9	.6	..	..	.6	1.0	2.4	1.1
Don't know	5.8	7.9	7.1	6.1	4.5	8.8	4.9	9.9

"WHY IS THIS KIND OF FUEL YOUR FIRST CHOICE?"

	TOTAL			
	Coal	City Gas	Bottled Gas	Oil
Economical, cheaper	57.3%	52.8%	25.0%	17.9%
Easier to operate, convenient	2.4	43.6	66.7	55.2
Better heat, warmer, more uniform	24.4	14.7	8.3	16.6
Cleaner	1.2	59.5	41.7	57.8
Always used this fuel, not familiar with others	11.0	..	..	..
Not as dangerous as others	11.0	1.2	..	4.0
Fuel always plentiful	2.4	1.2	..	3.6
Miscellaneous	3.7	1.2	8.3	.9
Indefinite	9.8	4.9	8.3	6.3

Volume Better Than Profits

Moderately Active in 1949, Dealers Could Have Sold More

FOR MOST OILHEATING dealers 1949 was a year of mixed experiences. The volume of oilburner installations was the second highest in the history of the industry, topped only by 1947 which is now recognized as a catch-up year following wartime deficiencies. Thus, 1949 was actually the industry's best year in any normal sense.

Volume was the only thing up however, for oilburner prices dropped considerably during the year with the result that the dealers had to look sharp about their buying of materials and handling of their workmen. Oilburner prices are decidedly too low but there is not much prospect that they will increase unless we should get a general inflationary upswing in 1950. On page 10 of this issue the regular monthly chart compares oilburner prices with selected general indexes and it is significant that they have fallen from a high index point of 154 in July 1948 to approximately 130 at present while the living cost index remains near 170 and building costs are still above the 200 mark.

Some industry men, particularly oilburner manufacturers, have complained of a lack of sales vitality in dealer organizations. The dealers themselves would be the first to admit this but many of them don't feel that they have the answer to enlarging their selling efforts without throwing the balance sheet into the red under today's low price conditions.

There are several measures of dealers' sales vitality. One is the amount of advertising they do. On that score they spent an average of $13.94 in 1949 for each oilburner sold. They might not have advertised burners in every instance . . . sometimes it was fueloil or service . . . but we use burner sales as a common denominator for comparing this activity in one year with another. This advertising investment showed a 25% rise over the average of $11.10 per burner spent in 1948 and a much greater rise over the $4.77 spent in 1947, when no one had to do any significant amount of sales promotion.

Another measure of sales vitality is the per cent of burners and units sold to buyers who first approached the dealer as compared to the per cent of buyers dug up by salesmen in active search for business. The table shows that the largest amount of actual business solicitation was done in New England and the Far West and the smallest amount was done in the Midwest and South. Averaging all sections, the buyer came looking for a burner in 51% of the instances and the salesmen went out and dug up the other 49% of sales. This is a slight improvement from 1948 as the table indicates, around 2%.

One manufacturer recently in the office complained that the worst sales lethargy was observed among those companies that have built up a large fueloil volume and consequent profitable operation. There is little need to push burner sales. The results of the present study refute that observation. All dealers cooperating with their figures this year were classified by the product that represented their largest dollar volume of sales in 1949. In the combined experience of those companies whose largest dollar volume was in oilheating equipment we found that only 41% of their sales were initiated by their employees while 59% of their sales came "over the transom." On the other hand, among all those cooperating companies whose principal dollar volume was in fueloil we found that they went out and fought for 52% of their burner sales while only 48% came as a result of a buyer first approaching them.

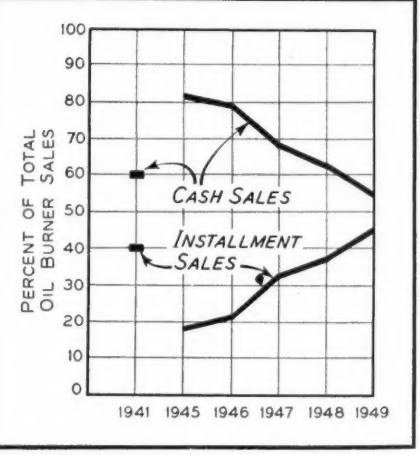
The chart "Burner Sales Leaders" shows that those dealers whose largest volume is in oilheating equipment continued to hold first place, with fueloil distributors in second place as the principal marketers of oilburners in 1949. Each of these groups increased its share compared with two years ago, as shown in the other half of the chart. The two groups in 1949 accounted for 78% of all oilburner sales compared with 71% in 1947.

There is another interesting measure of the tie-up of burners to oil shown in the table "Oil Influence on Burner Sales." This table does not classify the dealers by their largest dollar volume. It does show that 49% of all dealers who sold oilburners last year were also

Measure of Sales Vitality

	—OF ALL BURNER SALES— Buyer Approached Dealer	Salesmen Approached Buyer
New England	41%	59%
Mid-Atlantic	45	55
Midwest	65	35
The South	64	36
The West	40	60
U. S. 1949	51	49
U. S. 1948	49	51

INSTALLMENT SALES GAIN

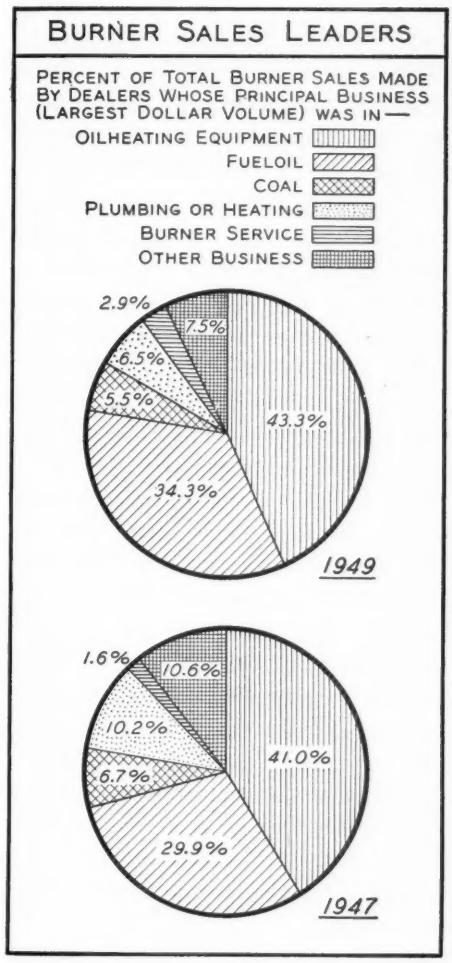


Dealer Advertising Expenditures

	Per Cent of Dealers Using	Spent Per Burner Installed	Spent Per Service Customer	Average Spent Per Dealer Using
Newspapers	75	8.04	.75	$840
Direct Mail	47	1.68	.16	279
Telephone Directory	72	1.91	.18	208
Radio	25	2.31	.21	731
1949 Total		13.31	1.30	
1948 Total		11.10	1.23	
1947 Total		4.77	.71	

Oil Influence on Burner Sales

	Per Cent of Burner Dealers Who Sell Oil	Per Cent of Total Burners Sold by Oil Sellers
New England	75	72
Mid-Atlantic	66	66
Midwest	20	21
South	29	31
West	33	51
Total U. S.	49	52



in the oil business and that 52% of all oilburners sold in the country were handled by companies that also sold fueloil.

This year for the first time the dealers were classified according to the size of cities in which they operate. The size separation is not used much in this specific portion of the annual analysis but is of considerable use in the two subsequent articles on oilburner service and fueloil handling. The accompanying table "Average Dealer Sizes" brings out some interesting facts on the general effect of population on marketing activity.

The cities designated as small have a population under 25,000; medium cities are those between 25,000 and 100,000; large cities have over 100,000 inhabitants. There are one or two exceptions to the overall pattern in this table but in general the size of companies builds up with the sizes of cities.

We do not know just how many dealers from each of the community sizes would constitute a perfect sample for a study of this kind, but the sample that we did get, measured in number of dealers cooperating, was 36% small city, 27% medium city, and 37% large city. Those figures refer to number of dealers. The ratio based on number of burners sold by the group would be: Small city 15%, medium 30%, large 55%. This is probably not far from the actual industry pattern since we recall that among the wartime oil heating rations 85% were found to be in metropolitan areas of 50,000 or more population. Our present sample finds 85% in centers of 25,000 or more population, reflecting increased postwar activity in smaller towns and rural communities.

The number of oilburner dealers selling competitive fuel equipment has increased considerably since this point was checked two years ago. In addition to selling oilburners, 24% of them in 1949 also sold stokers and 27% also sold gasburners. This compares with 17% and 14% respectively in 1947. The table "Dealers Selling Competitive Equipment" gives full detail on the 1949 figures. The actual number of stokers sold by oilheating dealers in 1949, or 16,467, represented a considerable drop from the 24,150 sold by oilheating dealers in 1947. On the other hand there was a rise in the number of gas heating jobs sold by these dealers, from 34,910 in 1947, to 53,738 in 1949.

Average Dealer Sizes

	1949 Burner Sales	No. 2-3 Service Customers	No. 2-3 Fueloil Customers
NEW ENGLAND			
Small cities	44	517	461
Medium	83	745	878
Large	115	1,214	1,214
MID-ATLANTIC			
Small cities	42	369	440
Medium	93	718	454
Large	127	1,661	1,614
MIDWEST			
Small cities	21	212	300
Medium	85	517	1,225
Large	103	1,241	1,925
SOUTH			
Small cities	22	144	163
Medium	59	635	561
Large	82	920	717
WEST			
Small cities	13	97	481
Medium	65	2,175	1,840
Large	116	1,280	1,322
ALL U. S.			
Small cities	32	313	400
Medium	84	846	881
Large	114	1,394	1,525

As oil and gas became increasingly competitive in recent months oilburner men have been making plans to combat the inroads of the other fuel in a number of markets. The table "Comparative Fuel Costs" shows the dealers' impression of the cost relationship between the two fuels. The study this year has almost no coverage of the states that have been traditionally heated by gas, the area running roughly from Mississippi and Tennessee to Southern California, but in the areas where oilheating has been sold in significant volume the percentages shown in the table are probably near right.

An interesting sidelight on this fuel cost section was a comparison of Midwest sales related to fuel costs. In 26 Midwest cities from which fuel cost

Dealers Selling Competitive Equipment

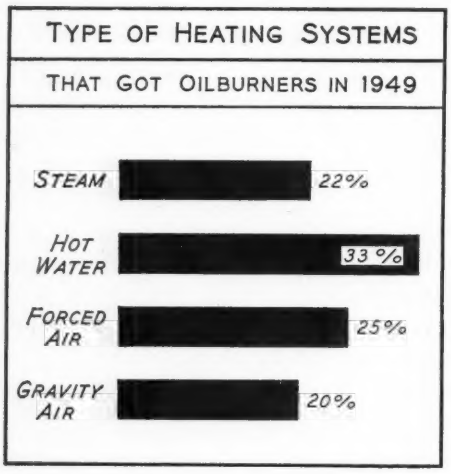
	Per Cent Who Sold Stokers	Number of Stokers Sold By Oilheating Dealers	Who Sold Per Cent Gas Burners	Number of Gas Burners Sold By Oilheating Dealers
New England	10	304	22	903
Mid-Atlantic	12	1,941	16	12,240
Midwest	35	9,171	39	28,292
South	71	4,169	29	832
West	33	882	44	11,471
All U. S.	24	16,467	27	53,738

Comparative Fuel Costs, Oil vs Gas

	Per Cent of Cities With Cheaper Oilheating	Average Per Cent Oilheating Is Cheaper	Per Cent of Cities With Cheaper Gas Heating	Average Per Cent Gas Heating Is Cheaper
New England	100	34	0	0
Mid-Atlantic	91	35	9	16
Midwest	42	18	58	17
Southeast	91	48	9	40
West	92	26	8	60

Type of Heating Systems That Got Oilheating

	Steam	Hot Water	Forced Air	Gravity Air
New England	36%	31%	18%	15%
Mid-Atlantic	28	39	16	17
Midwest	11	23	35	31
South	16	56	23	5
West	4	21	44	31
1949 Avg.	22	33	25	20
1948 Avg.	16	33	34	17
1947 Avg.	26	30	21	23
1946 Avg.	29	30	18	23



opinions were received, oilheating cost was 18% less than gasheating. In this group of cities the dealers estimate that the ratio of oil to gas installations in 1949 was 91% to 9%. Then dealers in another 36 Midwest cities estimated that gas heating in their cities was 17% cheaper than oil and in those markets the dealers estimate that the installation ratio in 1949 was 87% gas and 13% oil. This shows that in any large group of cities where the fuel cost difference averages as much as 17 or 18% the installation records pile up for the cheaper fuel.

There have been numerous exceptions, cities or neighborhoods where one fuel held its own, even though considerably higher priced. These were instances where real sales promotion was undertaken. In general, however, as shown by the experience related in the 62 Midwest cities, the cheaper fuel gets the strong promotion while the group interested in the other fuel runs for cover. Gas utilities are always promotional regardless of the price of their fuel but they turn on full steam in markets where they have a fuel cost advantage.

Smart Forecast by Dealers

A year ago the dealers cooperating in the study for the January 1949 issue estimated that in 1949 about 546,000 burners would be sold . . . the actual result was approximately 570,000. Now they are estimating that in 1950 there will be 642,000 burner sales.

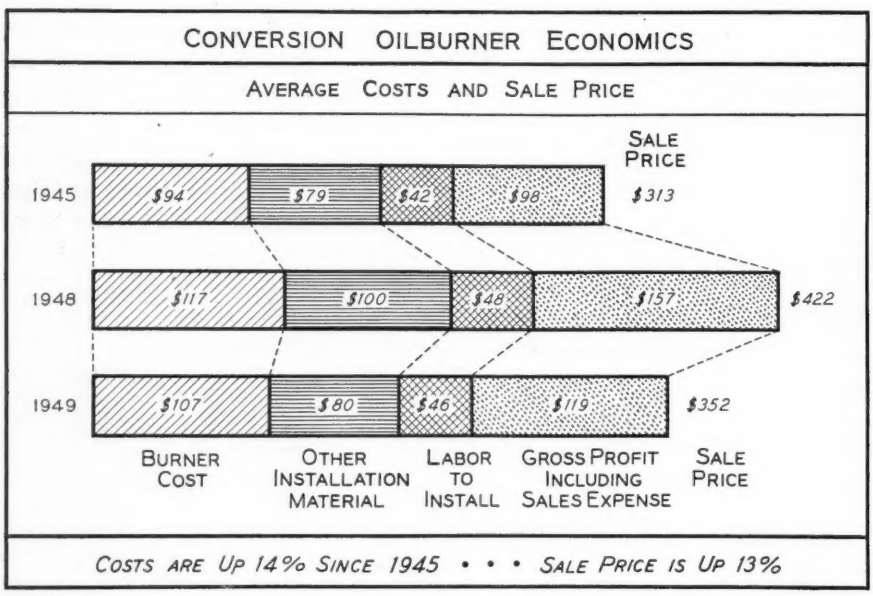
Among all of the cooperating dealers 55% employed one or more full time oilburner salesmen, averaging 1.9 men per dealer. The other 45% of dealers had small enough oilburner operations that the sales were made either by proprietors or servicemen. The average full time man sold 60 installations and, assuming an average contract price of $500 including boilers, furnaces and accessories, the man grossed $30,000 worth of business. Notice in the table "Oilburner Salesmen by Types" that the per cent of salesmen on straight commission has steadily declined while the per cent working on a combination of salary and commission has risen in the past three years. The average commission rate this year of 9.9% is down from 1948, largely as a result of the sharp drop in burner prices which caused some companies to cut their commission rates.

The average selling price of a conversion burner dropped from $422 in 1948 to $352 in 1949. The dealer's costs were down some but not nearly that much, with the result that his gross profit dropped from $157 to $119 on the average installation. These figures are shown by sections of the country in the table "Installed Cost of Conversion Burners."

There was a small increase this year in the per cent of total burners bought by dealers from wholesale operators, 24% compared with 22% in 1948. At the same time there was a drop in the number of dealers who get their burners from wholesalers, from 41% in 1948 to 36% in 1949. This shows a trend toward direct factory sales to smaller dealers. The relative importance of buying channels in different parts of the

Oilburner Salesmen By Types

	1949 U. S. Total	1948 U. S. Total	1947 U. S. Total
Per cent of men selling on commission	36	39	42
On salary	25	26	26
On salary and commission	39	35	32
Average commission rate	9.9	11.1	10.3
Average burner sales per man	60	59	68

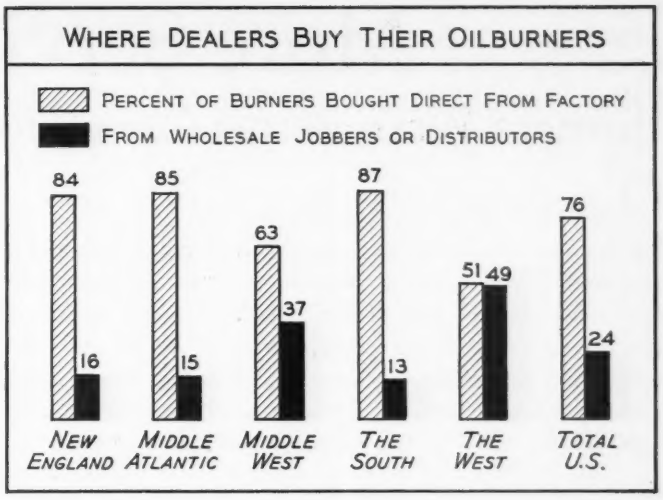


Installed Cost of Conversion Burner

	New Eng.	Mid Atl.	Mid West	The South	The West	1949 U. S. Total	1948 U. S. Total
Paid for Burner	110	101	105	114	106	$107	$117
Installation Materials	75	85	71	76	79	80	100
Labor, including subcontract	30	46	47	41	52	46	48
Gross profit, including sales expense	112	119	133	137	99	119	157
Average sale price	327	351	356	368	336	352	422

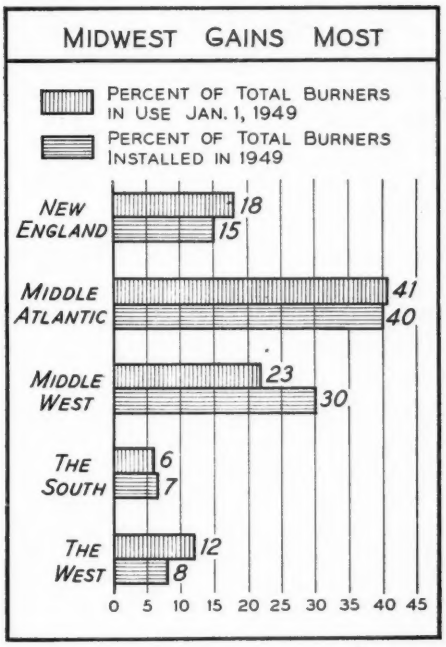
Where Dealers Buy Their Burners

	PER CENT OF DEALERS		PER CENT OF ALL BURNERS	
	From Factory	*From Wholesaler.*	*From Factory*	*From Wholesaler*
New England	74%	16%	84%	16%
Mid-Atlantic	69	31	85	15
Midwest	58	42	63	37
South	65	35	87	13
West	45	55	51	49
1949 U. S. Total	64	36	76	24
1948 U. S. Total	59	41	78	22



country is shown in the table "Where Dealers Buy Their Burners." The term "wholesaler" used in the table includes all types of middlemen, the oilburner distributor and the oilheating supply house as well as the traditional plumbing and heating jobber.

Dealers were asked to estimate the share of builder business in their communities that was being sold direct by oilburner manufacturers and their average estimate for the country as a whole was that 17% of the burners going into these new home developments bypass the dealer. The estimates by sections of the country were New England 17%, Mid-Atlantic 18%, Midwest 12%, the South 13%, and the West 28%.



Oilburner Installations by Months

	1949	*Prewar Average*
January	5.3%	4.3%
February	4.4	3.6
March	3.3	5.3
April	4.1	6.5
May	7.8	6.7
June	9.6	7.1
July	8.6	8.7
August	12.3	11.5
September	15.7	17.2
October	13.2	16.2
November	9.8	8.0
December	5.9	4.9

Through the years a good many oilburner dealers have gone into the fueloil business. Among the dealers reporting this year who do not now sell fueloil 10% have plans to get into that business during 1950. By sections of the country these intentions were expressed: New England 16%, Mid-Atlantic 16%, Midwest 9%, the South and Far West none.

One of the most interesting parts of this annual study is to learn from dealers what they think is going to happen to sales in the year ahead. Economists have many approaches to future activities in any industry such as national income, employment indicators, price trends, and such like. But in our industry the dealers seem to have a pretty good idea of what to expect. They know the buying influences in their communities, the competitive fuel situation and the amount of money in peoples' pockets. A year ago they forecast 1949 sales quite accurately. Here is a quotation from Page 75 of the January 1949 issue of FUELOIL & OIL HEAT:

"Looking ahead into the New Year all reporting dealers were asked to estimate what they could see in the way of sales in their markets. Putting together all of their opinions the dealers expect total oilburner installations in 1949 to be about 546,000."... We now know that 1949 installations were approximately 570,593 oilburners and units. On the same basis of cooperative estimating these dealers forecast for 1950 approximately 642,000 installations. In all dealer forecasts attempted at various times in the past several years they have in each instance been on the low side, so the present outlook is that 1949 installations will be upward of 650,000.

U. S. Department of Labor Fueloil Prices (October)

FIELD INVESTIGATORS for the Department of Labor monthly check prices of principal fuels in several cities in each section of the country. Getting retail quotations from various suppliers in each market, the prices are averaged and published. Those in the table that follow were taken October 15 (cents per gallon):

	Range	*No. 1*	*No. 2*	*No. 3*
Boston	13.40	13.20	11.90	..
Manchester	14.20	13.70	12.60	..
Portland, Me.	13.30	13.30	11.90	..
[3] Buffalo	13.94	..	12.93	12.93
[1] New York	..	..	11.89	..
Philadelphia	..	12.02	11.52	..
[1] Chicago	13.20	12.85	11.93	11.93
[4] Detroit	..	13.90	12.88	..
Milwaukee	..	13.30	12.40	12.30
[1] Kansas City	..	11.93	10.91	10.91
Minneapolis	13.17	12.93	11.62	11.93
[1] Baltimore	..	12.04	11.63	..
[1] Wash., D. C.	..	12.51	12.04	..
Jacksonville	..	13.03	12.52	..
Norfolk	..	12.10	11.00	11.00
Richmond	..	12.50	11.22	..
[2] Savannah	..	13.70	12.60	..
[5] New Orleans	..	13.34	12.36	12.36
Portland, Ore.	..	13.94	11.64	6.55
[6] San Francisco	..	13.77	11.44	6.48
[4] Seattle	..	14.77	12.65	6.74

[1] Prices include 2 percent tax.
[2] Inspection tax of one cent per gallon included on kerosene only.
[3] Prices include 1 percent tax.
[4] Prices include 3 percent tax.
[5] Prices include 3 percent tax on all fuels except gas; prices for kerosene and fueloil No. 1 also include one cent per gallon State health tax, and 1/32 of one cent per gallon State inspection tax.
[6] Prices include 3.5 percent tax on all fuels except gas.

More Service For Less

Burners Were Better Cared For in 1949 With Charges Lower

OILBURNER SERVICE departments during the year just ended were caught in a squeeze that threw a good many of them onto the red side of the ledger. By almost every measurement more service was rendered to oilburner users while at the same time average charges were down a little in just about every category, and yet wage rates for service men continued in their long upward climb.

The total income of all service departments averaged $13.69 per customer, a very significant drop from the average income of $16.60 the year before. The gross service billing for the industry was approximately $54 million compared with $60 million the previous year when there had been around 10% fewer burners to care for.

Some of this drop in service department income probably occurred in markets where natural gas was flaunting its free service appeal, and which caused oilburner service managers to bear down less heavily on their footings. Again some of the drop would be caused by a revival of active competition in all phases of marketing fueloil and oilburners, with the resulting attitude casting its shadow on service departments.

Annual service contracts again are in the front rank for attention with 14% of all customers being taken care of on this basis and representing a significant gain over the past two years. Average contract prices dropped $2 from $18.16 to $16.16. More contracts included parts this year, 36% compared to 33% in 1948. The price differential between contracts with and without parts was $4.50 in 1949, an improvement over $3.73 in 1948. Perhaps it was not actually an improvement since the table shows rather that contracts without parts dropped more in price than those including parts.

There are also an increase in the number of oilburners that got annual clean-ups, that were not included in contracts. The rise was from 25% in 1948 to 29% this past year and also on this activity there was a slight rise, about 1%, in the selling price.

In the division of service contract and annual clean-up activities between the small, medium and large cities it is very interesting to notice that the prevelance of service contracts rises with population growth while the reverse happens with the annual clean-ups. Small city operators put special emphasis on annual clean-ups and don't have much use for contracts, while the opposite is true in big cities.

The average minimum charge per call declined two cents in 1949 to $3.13. However, the table shows a significant difference by geographic areas and between cities of different sizes.

The average number of calls per customer in 1949 was 1.9, showing a slight drop from the 2.0 average calls measured in 1947, the last time this factor was checked. The small drop probably reflects improvement in fueloil quality since there have recently been fewer complaints about clogged nozzles and strainers. The average continues to remain above prewar figures, when the number consistently stayed in the neighborhood of 1.7 calls per user.

The average service man in 1949 was responsible for the maintenance of 380 oilburners, a significant rise from the corresponding figures of the two previous years as shown in the table. This figure is always held down by the number of small dealers in such a study, where they have to have one good man even though they may have only 100 service customers. Large outfits that have plenty of work to keep all men busy will run anywhere from 500 to 700 customers per man . . . in fact there were a couple of instances where the average was 1,000 customers per service man.

The average oilburner service man in 1948 was paid $1.79 per hour if he was skilled and $1.36 if he was a helper or apprentice. Including overtime the average burner service man skilled or unskilled earned $70 a week. The table

Different Size Cities

This year for the first time some of the data are separated to show the effect of size of cities.

Small cities for the purpose of this study have under 25,000 population; medium are 25,000 to 100,000; large are over 100,000.

Many Oilheating Dealers Have Sheet Metal Shops

	Own Shop	Use Prefabricated	Farm Out
New England	11%	30%	59%
Mid-Atlantic	13	26	61
Midwest	41	26	33
South	31	3	66
West	48	29	23
U. S. Aver.	24	26	50

Minimum Charge per Call

	Small Cities	Medium Cities	Large Cities
New England	2.43	2.69	2.85
Mid-Atlantic	3.00	3.13	3.50
Midwest	2.53	2.55	3.82
The South	2.78	3.78	3.39
The West	3.25	3.50	3.88
All Sec.	2.81	3.00	3.50

	1949	1948	1947
Overall Average	$3.13	$3.15	$2.91

Burner Service For Farms

	Per Cent of Customers on Farms	Distance From Town Without Extras	Charge Per Mile Beyond
New England	4%	10 miles	9¢
Mid-Atlantic	5	10	11
Midwest	14	9	11
The South	3	13	12
The West	4	9	11
U. S. Av.	7	10 "	11

Service Wage Rates Per Hour and Weekly Averages

	SMALL CITIES			MEDIUM CITIES			LARGE CITIES		
	Skilled	Helpers	Av. Week	Skilled	Helpers	Avg. Week	Skilled	Helpers	Avg. Week
New England	$1.47	$1.18	$59	$1.53	$1.13	$61	$1.68	$1.10	$64
Mid-Atlantic	1.58	1.34	61	1.71	1.29	69	1.77	1.27	71
Midwest	1.78	1.25	72	1.75	1.34	72	2.08	1.64	78
The South	1.70	1.15	53	1.47	.96	53	1.66	1.07	67
The West	2.54	2.13	93	2.22	1.79	84	2.31	2.02	89
All Sec.	1.72	1.37	67	1.73	1.31	69	1.88	1.40	73

	1949		1948		1947	
	Skilled	Helpers	Skilled	Helpers	Skilled	Helpers
Overall Average	$1.79	$1.36	$1.72	$1.40	$1.61	$1.16

on wage rates shows many variations from the overall average, both geographic and by sizes of cities. Men earned a little more as the size of cities increased but there was less than 10% difference in the whole spread of this population factor.

Among all cooperating dealers this year 18% have union shops. These dealers average somewhat larger than the overall group, so the number of union service men would probably reach 25% of the country's total. Notice in the table that the union percentage increases rapidly as we move from East to West ranging from virtually none in New England to 83% in the Far West.

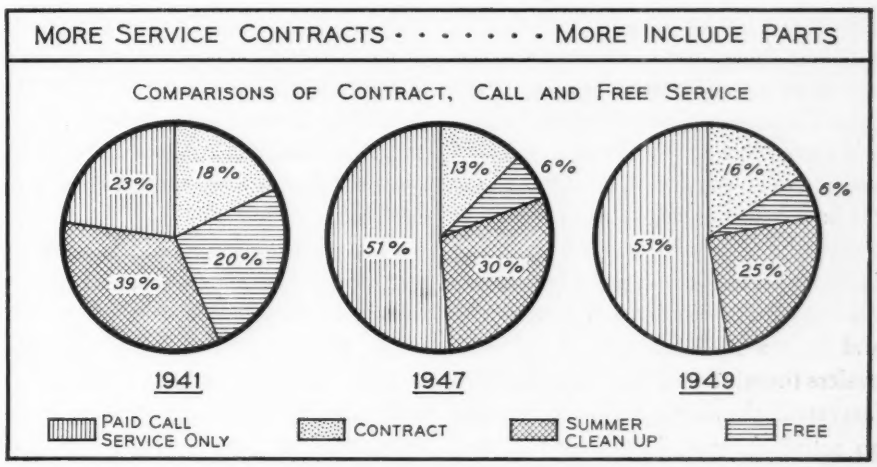
Approximately 7% of the oilburners in the country are on farms, with the Midwest states showing the highest ratio at 14%. Service managers have pretty definite ideas about how far they will go to service a burner on a farm without making an extra charge over town rates. The table shows that on the average they will go ten miles, but beyond that they charge an extra 11 cents a mile both ways. This means that service to a farm 20 miles away would involve an extra ten miles driving each way or a total of 20 miles extra. At 11 cents a mile the additional charge to this customer would be $2.20.

One interesting activity of burner service departments was the installing of blower units to convert gravity furnaces to forced air. Oilburner dealers made 10,818 such conversions in 1949. They also sold about 1,190 furnace blowers to replace others which had worn out.

Going into the New Year service managers have real problems. Gas competition is becoming more active in many cities while in others that so far have no gas competition there is enough talk of it that service departments are learning that they must keep all oilheating users satisfied. They must keep them satisfied not only with the operation of the equipment but with charges that seem reasonable. The racket element that penetrated our industry during and immediately following the war has pretty well left us for greener pastures. The income figures for service departments clearly show that charges on the whole are fair. Our new competition gives us more reason to keep them that way.

Service Measurements by Areas

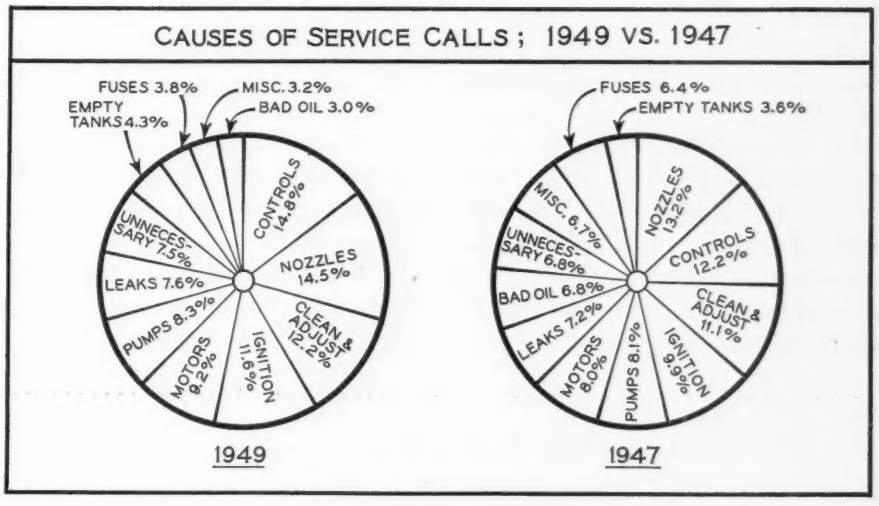
	New Eng.	Mid-Atl.	Mid-West	The South	The West	1949 U.S.	1948 U.S.	1947 U.S.
Average Service Income per Customer	$14.61	15.48	10.62	19.15	9.38	13.69	16.60	14.39
Average Calls per Customer	1.9	2.1	1.6	2.1	1.7	1.9	..	2.0
Customers per Service Man	454	391	276	300	470	380	302	340
Per Cent of Dealers With Union Shops	neg.	6	23	11	83	18	..	..



Annual Service Contracts

	SMALL CITIES % Custs. on Contract	SMALL CITIES Avg. Price	MEDIUM CITIES % Custs. on Contract	MEDIUM CITIES Avg. Price	LARGE CITIES % Custs. on Contract	LARGE CITIES Avg. Price
New England	11	$11.64	21	$13.92	27	$15.70
Mid-Atlantic	11	16.12	14	22.11	31	18.50
Midwest	5	13.03	5	11.03	2	17.04
The South	..	..	4	12.20	7	17.50
The West	..	..	1	15.10	..	..
All Sec.	10	14.17	11	16.15	19	17.84

	1949	1948	1947
Average Contract Price, With Parts	$19.02	$20.66	$20.38
Without Parts	14.52	16.93	15.03
All Contracts	16.16	18.16	..
Per Cent of Contracts That Include Parts	36	33	..
Total Contracts, Per Cent of Customers	14	12	13



Annual Clean-up Jobs

(not including contract customers)

	SMALL CITIES % of Custs.	SMALL CITIES Charge	MEDIUM CITIES % of Custs.	MEDIUM CITIES Charge	LARGE CITIES % of Custs.	LARGE CITIES Charge
New England	53	$6.13	40	$6.24	25	$6.63
Mid-Atlantic	42	7.13	36	8.70	16	9.68
Midwest	24	6.71	22	8.48	28	8.63
The South	13	6.03	34	7.56	21	6.82
The West	4	8.00	3	7.83	5	7.10
All Sec.	41	6.66	29	7.50	19	8.68

	1949	1948	1947
Average Price for Annual Clean-up	$7.68	$7.61	$7.28
Total Clean-ups, Per Cent of Customers	29	25	25

Fueloil Marketing, 1949

Volume of Business was Decidedly Spotty but Profits Improved

THE YEAR 1949 WAS a period of readjustment for fueloil distributors, getting back to a more or less normal routine after several years of serious problems. There was plenty of oil and more, and there were plenty of new customers waiting to be developed, mostly through the burner sales route. At the same time, gross volume of sales was disappointing in many parts of the country because of the very mild winter to start the year and then a mild fall to end it. Some dealers found themselves with a healthy increase in the number of customers but an actual decrease in gallons sold and dollar billing.

Again fueloil distributors had price troubles during the first half of the year with as many as a dozen fractional declines in six months resulting in inventory losses to nearly all bulk plant operators.

On the brighter side these fueloil marketers could clearly see that oilheating retained its popularity, chalking up the second best year in history for oilburner growth, and this in spite of a lot of newspaper publicity on the benefits of natural gas.

As explained in the previous articles the returns from fueloil marketers this year were divided into cities of three sizes: small cities with less than 25,000 population, medium cities with 25,000 to 100,000 inhabitants and large cities with more than 100,000. This separation was made to satisfy dealers who had pointed out in previous years that the figures would be more useful to them if they didn't have to compare Brooklyn with Emporia. The various tables convey a lot of useful data and warrant considerable study for comparison with the individual dealer's own business. It is hardly necessary to describe these tables in detail for they are quite easy to understand.

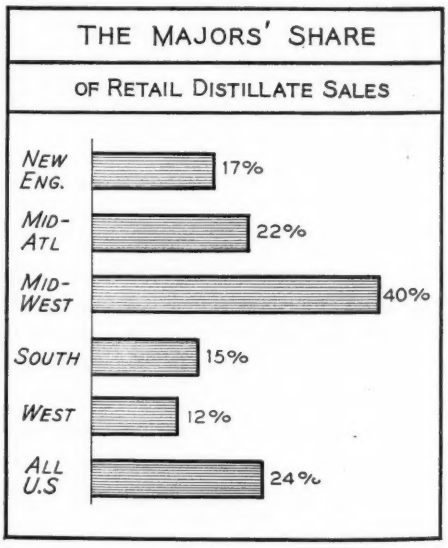
A couple of points should be made before going into the tables. All of the fueloil marketers cooperating in this study are so-called independents and none of the figures reflect the variations that might be caused by including major companies. In early years, when these annual studies were first undertaken, the major companies were inclined to be cooperative but it took too long to get their figures cleared at the necessary levels for release, so it was found impractical to include them.

Each figure in any table stands on its own. It is not always possible to cross-check some of the figures for that reason. In other words each figure represents the weighted average of all companies answering that particular question. This point would be illustrated in the table showing the number of trucks operated per dealer. The total of all types shown at the bottom of each column is not the sum of the individual applications listed above it since many dealers for example did not sell residual fuel and had no residual trucks, while not all dealers had kerosene trucks.

A third point worth noting is that the margin of error in these figures is lowest on the more popular items where the coverage is much larger than on the leaner parts of the study. For example, the distillate figures are always the best because we get so many more of them. Residual figures would be relatively weakest with kerosene in the middle.

Then geographically the figures from the New England, Mid-Atlantic and Midwest states are more firm than those from the South and Far West because far more dealers took part. The U. S. total figures on almost any item appear to have very little margin of error as the overall sample was about as good as could be had. This was shown in several tests where simple numeric averages were almost identical with averages weighted by geographic significance, size of markets, and size of dealers. There was not much increase in the number of fueloil marketers during the year; the existing ones took on most of the new customers. Even so, the average distillate sales per dealer on the year dropped about 13% below 1948. Both kerosene and residual increased.

One significant figure each year is the average gallons sold per customer. This is shown for the heating season for 1948-49 rather than for the calendar year, since dealers keep their own books on that basis. The average of 1,548 gallons for the residential distillate customer is 7% below the previous year while the average of all distillate users including commercial, at 1,831 gallons,



Extra Tanks for Old Customers in 1949

	NUMBER OF TANKS INSTALLED					
	275 gal.	550 gal.	675 gal.	1000 gal.	1500 & up	Total
New England	4,305	656	123	636	226	5,946
Mid-Atlantic	10,712	1,544	574	3,109	535	16,474
Midwest	12,772	677	..	492	..	13,941
The South	1,917	570	..	492	..	2,979
The West	1,281	217	59	..	..	1,557
U. S. Total	30,987	3,664	756	4,729	761	40,897

Automatic Deliveries Gain; Fill Signals Up

	1946	1947	1948	1949
Percent of dealers using automatic deliveries	56	65	66	79
Percent of customers thus served	74	64	63	70
Percent of users' tanks equipped with VENTALARM	26	33	38	48

is 14% below the previous heating season.

In the study of trucks this year over-the-road transports were included for the first time. It was a surprise to learn that 19% of the fueloil marketers in the country operate their own transports. It is true that 70% of all bulk plant operators get their supply by transport but it had been surmised that nearly all of this movement was handled by the professional transport companies. The per cent of dealers with their own transports is consistently high in all sections of the country.

The average distillate gallons per drop in 1949 at 221 was ten gallons below the previous year.

In the table "Customers and Trucks by City Sizes" it is interesting to make several discoveries. It would be expected that the average number of customers per dealer would increase with the size of the city, but it had not occurred to us that there would be a similar rise in the number of customers served by each truck. Then it was enlightening to notice how the annual average miles per truck is greatest in small cities and least in large ones. This brings us to the yardstick so commonly used for overall operating efficiency, gallons per truck mile, and we see a sharp rise as the city size increases.

Fewer Extra Tanks

Back in 1948 when there was public alarm over fueloil supply it was easy for marketers to persuade customers to put in additional storage in their homes. During that year an estimated 120,355 additional tanks were installed for this purpose. By 1949 the scare was past but some fueloil men kept pushing the idea with the result that one-third as many or just under 41,000 of these additional tanks went in.

Automatic deliveries made headway in 1949 after a three year decline. Seventy per cent of customers are now served with automatic deliveries while an estimated 48% of all customers have their tanks equipped with VENTALARMS.

There was a rise of about 8% in the dealers' bulk storage capacity for No. 2 and 3 oil. Most of the increase was concentrated in the Midwest and South where the industry's growth rate has been highest. The storage increase in

Characteristics of 1949 Fueloil Distribution

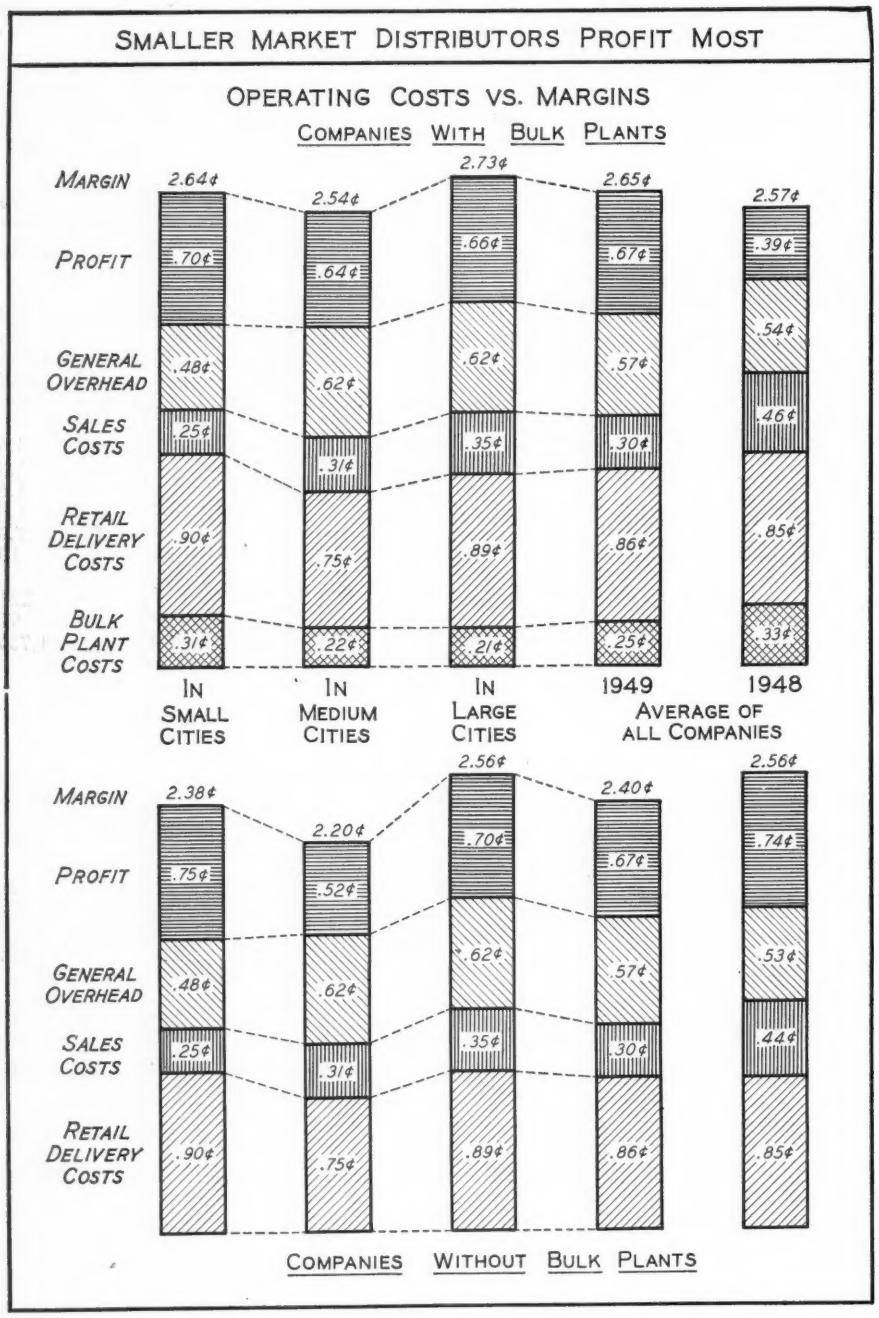
	New Eng.	Mid. Atl.	Mid-West	The South	The West	U. S. Total
Percent of dealers with bulk plants:						
with distillate storage	62	58	86	70	56	66
with No. 1, Kero. storage	60	45	76	59	22	53
with residual storage	5	6	14	..	17	8
Percent of dealers receiving oil:						
by rail	10	7	31	33	23	17
by water	13	14	8	2	23	13
by transport	77	79	61	65	54	70
Percent of dealers selling No. 1, Kero.	80	58	76	80	60	68
Percent selling Residual	19	30	17	21	61	28
Average storage capacity (thousand gal.)						
Distillate	308	199	186	37	162	201
No. 1, Kerosene	117	48	118	42	265	102
Residual	555	510	111	..	50	340
Average sales per dealer (thous. gal.)						
Distillate	1,527	1,715	2,119	584	1,422	1,771
No. 1, Kerosene	277	175	615	503	1,109	431
Residual	305	1,881	4,326	309	532	1,799
Avg. gal. per customer, 1948-49 season:						
Distillate, residential	1,593	1,758	1,484	1,060	1,130	1,548
Distillate, commercial-apartment	8,304	6,499	5,563	2,801	3,542	6,032
Distillate, all users	2,025	1,980	1,904	1,207	1,207	1,831
No. 1, Kerosene	796	797	1,001	472	807	825
Residual	12,190	39,180	36,972	7,020	12,983	30,495
Trucks operated per dealer, Distillate	3.3	3.4	4.8	1.7	3.2	3.6
No. 1, Kerosene	1.3	1.2	2.4	3.4	2.9	1.8
Residual	1.5	1.3	2.2	1.0	1.6	1.6
Over-the-road transports	1.2	1.5	3.1	2.0	1.0	1.8
All types	4.8	4.2	7.6	4.4	5.8	5.3
Percent of dealers operating transports	23	10	32	20	17	19
Average gallons per drop, Distillate	178	227	244	213	227	221
No. 1, Kerosene	61	85	131	77	81	90
Residual	2,098	2,253	1,177	550	1,084	1,735

Customers and Trucks by City Sizes

	New Eng.	Mid-Atl.	Mid-West	The South	The West	U. S. Total
Average number of customers per dealer						
DISTILLATE RESIDENTIAL						
Small cities	444	420	285	143	362	370
Medium cities	812	430	1,147	510	1,765	829
Large cities	1,133	1,538	1,694	667	1,258	1,415
All cities	754	866	1,113	484	1,178	917
DISTILLATE, COMMERCIAL-APARTMENT						
Small cities	17	20	15	20	119	30
Medium cities	66	24	78	51	75	52
Large cities	81	76	231	50	64	110
All cities	52	43	132	45	83	70
NO. 1, KEROSENE	348	219	614	1,065	1,374	522
RESIDUAL	25	48	117	44	41	59
Distillate customers per truck						
Small cities	239	194	150	163	213	192
Medium cities	253	244	350	350	443	300
Large cities	282	338	293	430	402	331
Annual average miles per truck						
Small cities	7,937	11,840	8,526	13,510	20,103	11,466
Medium cities	11,171	11,010	7,682	18,887	15,947	10,648
Large cities	11,528	9,615	6,902	5,800	15,592	9,824
Average annual gallons per truck (thous.)						
DISTILLATE						
Small cities	484	384	286	197	257	352
Medium cities	512	483	666	422	535	549
Large cities	571	669	558	519	485	606
Distillate gallons per truck mile						
Small cities	60	32	33	14	12	30
Medium cities	45	43	86	22	33	51
Large cities	49	69	80	89	31	61

Truck Drivers' Wage Rates Per Hour and Weekly Averages

	— SMALL CITIES —			—MEDIUM CITIES—			— LARGE CITIES —		
	Best Men	Low-est	Avg. Week	Best Men	Low-est	Avg. Week	Best Men	Low-est	Avg. Week
New England	$1.08	$ .94	$51	$1.32	$1.04	$56	$1.29	$1.16	$62
Mid-Atlantic	1.26	1.14	57	1.37	1.19	62	1.51	1.33	65
Midwest	1.39	1.08	59	1.40	1.24	70	1.48	1.40	64
The South	..	..	43	1.31	1.14	57	.85	.75	53
The West	1.43	1.38	68	1.59	1.37	75	1.60	1.56	71
All Sec.	1.28	1.12	57	1.39	1.19	64	1.43	1.31	64



Margins and Operating Costs, No. 2-3 Oil

	New Eng.	Mid-Atl.	Mid-West	The South	The West	U. S. Total
Bulk Plant Costs	.30¢	.22¢	.27¢	.18¢	.23¢	.25¢
Retail Delivery Costs	.87	.87	.82	.70	1.07	.86
Selling Costs	.37	.29	.31	.14	.36	.30
Overhead	.82	.53	.46	.23	.50	.57
Margin with Bulk Plant	2.84	2.82	2.33	2.46	2.69	2.65
Without Bulk Plant	2.85	2.63	1.67	2.26	2.52	2.40
Profit with Bulk Plant	.48	.91	.47	1.21	.53	.67
Without Bulk Plant	.79	.94	.08	1.19	.59	.67

New England has been negligible and in the Mid-Atlantic areas relatively small.

The storage capacity shown in the table for the West was influenced mostly by fueloil companies in Oregon and Washington. The storage ratio to sales is very low in that section because nearly all of the big city marketers load their trucks at the terminals of major companies, but they have a small emergency tank, perhaps 20,000 or 30,000 gallons, at home base. It is these emergency tanks that they report as their bulk capacity although they may have no turnover for considerable periods of time.

Drivers Average $61 a Week

The average truck driver in the nation in 1949 was paid $1.32 an hour and his weekly check including overtime, if any, was $61. The table shows this in considerable detail with men in the smallest cities having lowest average incomes with the hourly wages climbing with population increases. There is also a steady increase in drivers' pay as you move across country from East to West, with the exception of Southern states.

About 19% of all fueloil truck drivers belong to unions and again this factor increases steadily as you progress from the Atlantic to the Pacific areas. The per cent of union drivers by regions is: New England 7, Mid-Atlantic 12, Midwest 31, Far West 44, and South 0.

The study of operating costs compared to margins was changed a little this year to reflect conditions in cities of different size, rather than showing comparisons between companies of different size as in former years. They may amount to the same thing since we have seen that the size of companies more or less parallels the size of cities, but with this new method we do get the influence of the lower wage rates in smaller places.

The marketers in the smallest cities fared best for profits while those in the largest cities did better than the intermediate ones. The average of all margins for operators with bulk plants was up 8 points this year to 2.65¢ while those without bulk plants dropped from 2.56 to 2.40. It would appear that margins have been adjusted during the year to bring back proper differentials between those who have and have no bulk plants.

The difference of .25¢ in margins just covers the average bulk plant cost of all reporting companies.

In the table showing margins and costs by geographic areas it is interesting to notice again this year that in New England the average bulk plant operator has no more margin than the man who buys under the rack. The rack price for the region is strongly influenced by conditions in Metropolitan Boston where large marketers without bulk plants have about the highest margins in the country.

One other significant figure in the margin table is the low point reached by the Midwest operator buying under the rack. That section has a different concept of this type operator, usually calling him a commission dealer. This means in most instances that he finds his own customers and operates his own trucks but does not carry his own accounts.

Trucks Keep Getting Larger

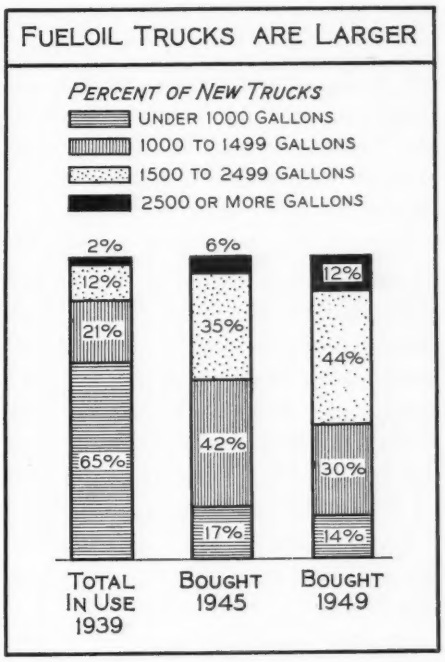
Fueloil distributors are moving rapidly into the field of ever larger trucks. A chart compares the average size of all trucks in use in 1939 with the new trucks bought in 1945 and then during the past year. We have now reached the point where considerably more than half of all new trucks have capacities of 1,500 gallons and upward. In the largest size bracket shown in the chart, trucks of more than 2,500 gallons, our study shows that 63% of that group are semi-trailers, most of them transports.

Looking into credit operations of fueloil marketers we find that 13% offer discounts for prompt payment. Most of these discounts range from .25¢ to .50¢, or represent 2% of the gross bill, if the account is settled by the tenth of the month. In the previous year quite a few companies reported cash discounts for payments made within ten days after delivery but in 1949 that practice seems to have been pretty well abandoned.

There was decided interest in 1949 in budget plans under which dealers offered to let their customers make regularly monthly payments through the heating season and then give or take the difference on June 1. Among all dealers reporting, 21% offered such a plan and it was adopted by 8% of all customers

Dealers Bulk Storage Capacity No. 2-3 Oil

	Barrels
New England	3,229,740
Mid-Atlantic	12,170,979
Midwest	6,878,825
The South	1,342,280
The West	622,443
Total	24,244,267



of this group. The individual dealer percentages of customers on budgets range from 2% to 25%. The practice seems to have made greatest headway in New England, probably because so many of the fueloil marketers up there were former coal companies, and monthly budgets have been common in the coal industry for years.

Majors Sell a Fourth

Major oil companies in 1949 sold 24% of the total retail sales of No. 2 and 3 heating oil. The chart shows this by sections. The figures naturally are not based on actual measurements, since this would be impossible but on the collective opinions of several hundred dealers each reporting for his own market. In other studies since the war ended the share of the majors has ranged from 27% to 29%. The reason for the present drop is not clear unless it could be that independent fueloil men who sell oilburners are getting most of the new accounts thus created, while the majors can only increase their retail business by weaning away dissatisfied customers of the fueloil distributors.

In spite of all the hullabaloo over cheap natural gas raiding our industry in the Midwest, we actually lost very few old customers to that fuel. As mentioned in the first article of this annual analysis, the fueloil customers who converted to gas during the year numbered only 30,275 or about three-fourths of one per cent of the total in the country. Fueloil men lost a little over 5,000 customers to electric heating and just under 3,000 to coal, a total of 38,250 lost to other fuels. During the same period oil men gained by conversions to oil from other fuels 340,073 new customers, showing a favorable ratio of gains to losses of 9 to 1.

Looking into 1950 there is nothing especially alarming on the fueloil marketers' horizon. The outlook for oilburner installations is even more favorable than it was in 1949, oil prices are fairly well stabilized at a point well below their 1948 peak, and in general there is little to be concerned about that can't be overcome by diligent effort in a wide open competitive market.

Single-Family Houses Show Modest Gain In 11 Months

RENTAL HOUSING has shown substantial gains this year over last, the F. W. Dodge Corp., has disclosed, pointing to a 49% increase in apartment-house awards. The volume of apartment contracts was $987,317,000 in the first eleven months of this year.

Modest gains were reported for single-family houses. Awards for houses built to owners' orders by contract builders amounted to $948,617,000 through November to show an 8% gain over the corresponding period of last year, while single-family houses built by operative builders for sale or rent increased 5% to total $1,633,783,000.

The over-all residential total, including hotels, dormitories, two-family houses, and other kinds of shelter, was $3,820,335,000 or 14% more than in the first eleven months of last year.

Public residential building took on increasing importance this year with an eleven-month volume of $326,826,000 or 120% more than in the same period of last year. Private residential work in the eleven months totaled $3,493,509,000 to show an increase of 9%.

Range Oil Sales By Grades and by States U. S. Bureau of Mines

(Thousands of barrels of 42 gallons)

NEW ENGLAND STATES

1	Kero-sene	No. 1 Fuel	1948 Total	1947 Total
Massachusetts	13,955	843	14,798	14,330
Connecticut	4,954	391	5,345	5,139
Rhode Island	3,136	175	3,311	3,027
Maine	2,465	209	2,674	2,181
N.Hampshire	1,616	57	1,673	1,359
Vermont	805	..	805	731
	26,931	1,675	28,606	26,767

MIDDLE ATLANTIC STATES

2	Kero.	No.1	1948	1947
New York	10,225	507	10,732	9,471
New Jersey	5,704	336	6,040	5,073
Pennsylvania	2,435	381	2,816	2,501
Maryland	1,286	5	1,291	1,043
Dist. of Col.	293	1	294	290
Delaware	299	..	299	274
	20,242	1,230	21,472	18,652

MIDDLE WESTERN STATES

3	Kero.	No. 1	1948	1947
Illinois	2,914	2,571	5,485	4,906
Michigan	901	980	1,881	1,747
Wisconsin	612	1,150	1,762	1,488
Iowa	734	791	1,525	1,292
Minnesota	678	1,147	1,825	1,455
Missouri	825	729	1,554	1,368
Ohio	1,116	269	1,385	1,208
Indiana	539	543	1,082	864
Nebraska	453	212	665	549
Kansas	331	139	470	390
N. Dakota	178	229	407	348
S. Dakota	201	179	380	308
	9,482	8,939	18,421	15,923

WESTERN STATES

4	Kero.	No. 1	1948	1947
California	493	..	493	248
Montana	62	231	293	291
Colorado	105	245	350	328
Wyoming	21	59	80	67
New Mexico	209	11	220	241
Washington	106	..	106	18
Oregon	52	..	52	12
Utah	17	51	68	57
Arizona	22	..	22	27
Idaho	17	68	85	64
Nevada	3	..	3	2
	1,107	665	1,772	1,355

SOUTHERN STATES

5	Kero.	No. 1	1948	1947
N. Carolina	2,264	61	2,325	1,969
Florida	1,565	97	1,662	1,508
Texas	1,856	169	2,025	1,644
Georgia	1,253	110	1,363	1,136
S. Carolina	882	74	956	775
Virginia	1,010	86	1,096	903
Oklahoma	616	44	660	484
Arkansas	727	145	872	746
Tennessee	850	73	923	753
Louisiana	441	53	494	410
Alabama	480	81	561	456
Kentucky	436	10	446	242
Mississippi	401	18	419	313
W. Virginia	86	4	90	78
	12,867	1,025	13,892	11,417

TOTAL UNITED STATES

	Kero.	No. 1	1948	1947
U. S. Total	70,629	13,534	84,163	74,114

1948 Fueloil Consumption, United States Bureau of Mines

CONTINUING THE TREND of recent years, sales of distillate fueloils and kerosene reached new highs in 1948, according to the annual canvass covering deliveries reported by dealers as made by A. T. Coumbe and I. F. Avery, Petroleum Economics Branch, Bureau of Mines, U. S. Dept. of the Interior.

Demand for distillate grades expanded by 14% from a total of 298,014,000 barrels in 1947 to 340,139,000 in 1948. Residual fueloil sales of 502,051,000 barrels were about 4% below the 1947 quantity of 520,529,000 barrels. Deliveries of all grades of fueloil in 1948 totalled 842,190,000 barrels, a net gain of 3% over the 1947 aggregate of 818,543,000 barrels. Kerosene sales of 112,487,000 barrels in 1948 were 10% above 1947's 102,703,000 barrels.

A large percentage increase in sales of light grades of heating oils reported for 1947 was not repeated in 1948, total deliveries of light heating oils being 200,024,000 barrels, 12% above the 1947 total of 178,359,000 barrels, which in turn exceeded 1946 requirements by 28%. The market for residual grades of heating oils of 58,639,000 barrels in 1948 was 4% above the 1947 total of 56,402,000 barrels, as compared with a 13% increment in 1947 over 1946 deliveries. Light fueloils used for space heating accounted for almost 60% of total sales in 1947 and 59% in 1948; the market for the heavy grades of heating oils made up about 11% of all demands in 1947 and 12% in 1948.

Three-fifths of light heating oils were sold in the East Coast area, where the demand rose to 118,445,000 barrels this year, a 12% increase over 1947. Distributors in the North Central states reported about a quarter of light heating oil sales, deliveries of 49,151,000 barrels being 13% over the 1947 demand. Pacific Coast sales of 21,484,000 barrels in 1948 exceeded last year's total by 10%. Relatively small amounts of distillate heating oils are used in the Rocky Mountain and South Central States, with sales in these areas showing gains of 35% and 16%, respectively.

Deliveries of heavy heating oils increased in the East Coast area—where most of them are sold—11% to 38,134,000 barrels, contrasting with losses reported in the North Central and Pacific Coast regions. In the former area, deliveries dropped 8% in 1948 to a total of 9,296,000 barrels; on the West Coast a similar percentage shrinkage was reported, with sales of 8,534,000 barrels.

Kerosene and No. 1 fueloil demand increased from 74,114,000 barrels in 1947 to 84,163,000 this year, with New England accounting for more than a third of the sales, the Middle Atlantic States for about a quarter and the North Central States about a fifth. The increase in total sales of kerosene for all uses was probably inflated by the use of kerosene for No. 1 fueloil in central heating plants during spot shortages in early 1948 in some areas. Kerosene sold for range oil increased to 70,620,000 barrels in 1948, up 13% and representing 63% of total kerosene demand.

Fueloil Sales 1944-48, by Uses

(In millions of barrels)

DISTILLATE 1944	1945	1946	1947	1948	USES	RESIDUAL 1944	1945	1946	1947	1948
112	121	140	178	200	Heating	40	44	50	56	59
7	7	8	12	14	No. 1 Sold As Range	..	..	..	..	..
11	14	18	24	31	Railroads	115	112	100	98	90
13	14	12	14	15	Vessels	92	100	88	102	96
6	7	11	14	15	Utilities	34	35	51	61	57
17	19	21	24	30	Industrial	87	91	99	115	118
1	1	2	2	4	Oil Company Fuel	55	57	58	63	57
43	30	9	5	7	Armed Forces	101	97	36	19	20
15	17	19	24	25	All Other Uses	4	5	5	7	7
225	230	240	297	341	Total United States	528	541	487	521	504
43	33	29	30	22	Exports	13	12	9	11	13
268	263	269	327	363	Total	541	553	496	532	517

Heating Oil Sales
By Grades and by States
Official U. S. Bureau of Mines Figures
(In thousands of 42-gallon barrels)

NEW ENGLAND STATES

1948				Total Distillate			1948		Total Residuum		Grand Totals	
No. 1	No. 2	No. 3	No. 4	1948	1947	1	No. 5	No. 6	1948	1947	1948	1947
1,543	15,296	245	22	17,066	16,204	Massachusetts	1,575	6,496	8,071	7,298	25,137	23,502
731	7,053	638	21	8,443	6,829	Connecticut	1,919	2,049	3,968	2,092	12,411	8,921
61	2,685	261	..	3,007	2,865	Rhode Island	46	1,464	1,510	1,362	4,517	4,227
46	1,069	15	..	1,130	1,106	New Hampshire	17	80	97	270	1,227	1,376
67	1,729	44	..	1,840	1,766	Maine	..	137	137	142	1,977	1,908
5	622	34	..	661	632	Vermont	21	49	70	85	731	717
2,453	28,414	1,237	43	32,147	29,402		3,578	10,275	13,853	11,249	46,000	40,651

MIDDLE ATLANTIC STATES

No. 1	No. 2	No. 3	No. 4	1948	1947	2	No. 5	No. 6	1948	1947	1948	1947
1,685	29,251	3,568	57	34,561	30,802	New York	1,770	10,495	12,265	11,487	46,826	42,289
1,091	16,352	3,319	230	20,992	18,147	New Jersey	1,553	4,312	5,865	5,392	26,857	23,539
479	11,498	1,850	11	13,838	13,109	Pennsylvania	1,479	2,695	4,174	3,909	18,012	17,018
87	6,399	495	..	6,981	5,923	Maryland	114	639	753	750	7,734	6,673
67	2,168	..	..	2,235	2,216	Dist. of Col.	75	500	575	668	2,810	2,884
36	618	81	..	735	661	Delaware	..	80	80	95	815	756
3,445	66,286	9,313	298	79,342	70,858		4,991	18,721	23,712	22,301	103,054	93,159

MIDDLE WESTERN STATES

No. 1	No. 2	No. 3	No. 4	1948	1947	3	No. 5	No. 6	1948	1947	1948	1947
1,401	5,104	5,997	175	12,677	12,621	Illinois	2,994	1,904	4,898	5,393	17,575	18,014
1,214	4,015	1,887	96	7,212	6,807	Minnesota	151	146	297	287	7,509	7,094
2,124	3,733	1,690	51	7,598	6,935	Michigan	1,494	565	2,059	2,268	9,657	9,203
655	1,855	1,911	218	4,639	4,250	Missouri	1,774	358	2,132	2,069	6,771	6,319
611	2,817	1,674	21	5,123	5,076	Wisconsin	589	196	785	724	5,908	5,800
722	2,405	369	..	3,496	2,581	Iowa	86	5	91	125	3,587	2,706
603	2,227	891	27	3,748	2,730	Indiana	501	96	597	666	4,345	3,396
628	631	973	4	2,236	1,974	Nebraska	85	1	86	146	2,322	2,120
1,542	744	1,770	621	4,677	3,003	Ohio	176	70	246	280	4,923	3,283
289	340	173	3	805	724	South Dakota	4	21	25	12	830	736
306	449	195	1	951	543	Kansas	109	50	159	186	1,110	729
161	295	97	..	553	503	North Dakota	1	11	12	1	565	504
10,256	24,615	17,627	1,217	53,715	47,747		7,964	3,423	11,387	12,157	65,102	59,904

WESTERN STATES

No. 1	No. 2	No. 3	No. 4	1948	1947	4	No. 5	No. 6	1948	1947	1948	1947
4,067	..	3,329	..	7,396	7,370	California	3,825	544	4,369	5,200	11,765	12,570
4,658	..	3,561	..	8,219	7,183	Washington	2,245	287	2,532	2,346	10,751	9,529
2,371	..	2,144	..	4,515	3,768	Oregon	1,441	104	1,545	1,653	6,060	5,421
314	..	363	..	677	582	Nevada	60	5	65	74	742	656
409	..	268	..	677	601	Arizona	23	..	23	38	700	639
298	236	185	..	719	568	Colorado	1	..	1	3	720	571
618	288	77	24	1,007	516	Idaho	..	5	5	..	1,012	516
187	116	233	47	583	478	Utah	..	..	..	..	583	478
218	184	139	..	541	531	Montana	2	11	13	55	554	586
48	171	23	1	243	174	Wyoming	3	7	10	20	253	194
34	79	15	..	128	126	New Mexico	..	..	..	..	128	126
13,222	1,074	10,337	72	24,705	21,897		7,600	963	8,563	9,389	33,268	31,286

SOUTHERN STATES

No. 1	No. 2	No. 3	No. 4	1948	1947	5	No. 5	No. 6	1948	1947	1948	1947
291	2,314	19	..	2,624	2,397	Virginia	32	141	173	265	2,797	2,662
151	830	241	..	1,222	1,092	Florida	26	313	339	367	1,561	1,459
204	869	518	..	1,591	1,250	N. Carolina	..	..	..	21	1,591	1,271
65	161	69	4	299	288	Louisiana	35	49	84	51	383	339
158	588	91	..	837	517	Georgia	18	30	48	85	885	602
6	787	215	73	1,081	1,027	Texas	143	68	211	215	1,292	1,242
31	504	43	..	579	527	S. Carolina	7	..	7	6	585	533
132	338	89	59	618	347	Kentucky	8	61	69	111	687	458
6	66	6	2	80	79	Arkansas	..	5	5	65	85	144
23	90	13	3	129	89	Oklahoma	5	13	18	..	147	89
105	269	89	..	463	328	Alabama	7	28	35	30	498	358
42	305	61	..	408	383	Tennessee	2	129	131	90	539	473
8	82	14	..	104	76	W. Virginia	2	..	2	..	106	76
32	45	4	..	81	55	Mississippi	..	2	2	..	83	55
1,254	7,248	1,472	141	10,115	8,455		285	839	1,124	1,306	11,239	9,761

TOTAL UNITED STATES

No. 1	No. 2	No. 3	No. 4	1948	1947		No. 5	No. 6	1948	1947	1948	1947
30,630	127,637	39,986	1,771	200,024	178,359	U. S. A.	24,418	34,221	58,639	56,402	258,663	234,761

Industry Again Rated Tops

Sales Analysts See Banner Oilheating Year in 1950

by
Peter B. B. Andrews*

ONE OF THE MOST PROMISING LINES of business in the United States in 1950 is the oilheating industry. This is the consensus of the Board of Judges of Future Sales Ratings, a nationally famous organization which rates the sales prospects of the 100 leading industries of the country. The ratings of the complete list of 100 industries are published quarterly in *Sales Management*.

The currently existing potential of new domestic oilburner sales is estimated by the writer and his future-sales-ratings associates to approximate $4,500,000,000—*a decade of capacity operation for this industry.*

How much of this huge potential can the oilburner industry get in 1950? With intensive advertising and promotion to bring the crystallization of the extensive modernization desires into orders, it is possible for 1950 sales to approximate $450,000,000—a new high record, even with the drawbacks of early steel shortages.

Effective Salesmanship Needed

This is not to say that any salesman can step up to a prospect and casually "accept" an overwhelming order. Advertising and promotion, to pave the way for effective salesmanship, are more of a must than ever, as the country and the world cope with the economic problems of a buyer's market.

Necessarily, these figures are estimates, being based on the writer's survey among Government and trade economists and marketing specialists in the 300-man board which decides Future Sales Ratings. Such comments among Government economists as "the need for production is undoubtedly tremendous," and, again, "production should be much higher than in 1949," referring to domestic oilburners, keep pointing up the "if" quantity—"if" advertising and promotion are great enough and strong enough.

The writer believes that the oilburner industry will meet these challenges and that the Board of Judges of Future Sales Ratings is well justified in reaching a rating-consensus of five stars for oilburner sales in 1950. That is the highest rating any industry can get, and it signifies an expected outstanding level of activity in the new year—probably about 25% higher retail sales than in 1949.

Discussions with these authorities, whether in Government or in private industry, reveals extensive familiarity with FUELOIL & OIL HEAT; many were outspoken in their regard of this publication as the statistical and editorial bible of the industry, and indicated its thoroughgoing use for fundamental data. Accordingly, in explaining why this Board rates the sales prospect for domestic oilburners so highly, the writer will avoid going into numerous figure details which already have been so ably presented to FUELOIL & OIL HEAT readers.

Favorable expectations for a plentiful home heating oil supply, as well as an anticipated high level of public employment, disposable personal incomes, credit availability, new housing, and increased advertising and promotion represent the basic structure of the Board's thinking in assigning the top sales rating to the oilburner industry.

Warm weather late in 1949, especially in October, served to curtail demand for heating oils, with the consequence that stocks, which had been built up during the summer in preparation for a normally cold fall and winter, grew to record-breaking highs. Fuel supply, of course, had been one of the oilburner industry's greatest problems, solved by a program of improving refinery and other facilities.

Distillate stocks now are more than adequate, given even an extremely cold winter, precluding any development like that of the bitter 1948 winter, when shortages of heating oil in some parts of the country caused a slump in new installations.

Current reserves of petroleum on this continent and in foreign fields indicate the availability of enough natural oil for years to come, considering even the steady expansion of all types of equipment using oil. And, then, of course, from any emergency viewpoint there are the enormous standby resources of synthetic oil. The coal and lignite deposits of this country, estimated at 3.2 trillion tons, could supply all liquid and solid fuel requirements at present rates of consumption for the next 1,000 years. Oil shale deposits, moreover, are estimated at 92 billion barrels of recoverable oils—enough for almost 50 years' consumption—and synthetic fuels from natural gas, already a reality, represent an additional worthwhile supply.

In any event, oilburner companies can forget that oil supply bogey, and concentrate on filling the big demand potential. The untapped field is tremendous, with just less than 4,500,000 oil-fired installations in the United States as of December 31, 1949. This is only about 10% of the nation's homes, at least half of which represent logical sales targets for oilburners. The 1949 coal-supply troubles and strikes inevitably stirred up more discontent with coal furnaces, adding to the potential for oilfired installations.

Ability to Buy Never Greater

This great section of the population may take a lot of convincing before they will order an oilburner, but at least their ability to buy has never in the history of the country been greater. Though some singers of the blues can always be found, the fact remains that the reservoir of public buying power is at a record level and rising.

Disposable personal income (personal income minus personal taxes) of the American public reached about 192 billion dollars in 1949, topping slightly the 191 billion dollars of 1948, but the 1950 aggregate is expected to attain a new all-

*Former industrial economic adviser, United States Government.

demand DETROIT CERTIFIED CONTROLS

DETROIT CRC-433 For Vaporizing Burners
—Provides an automatic fuel system for vaporizing type space heaters, water heaters, ranges, floor furnaces, or basement furnaces. Fuel is automatically supplied to the burner according to consumption. Equipped with easily cleaned strainer. Motor driven vane pump operates only when fuel is needed—shuts off automatically if tank runs dry. Quiet in operation.

Capacity 80 c.c. per minute, 1½ gals. per hour at 25 ft. suction lift. Write for bulletin No. 218.

DETROIT CRC-533 For Rotary and Pressure Burners
—Provides automatic fuel supply for domestic rotary or pressure type burners and runs only when the burner is operating. When used with burners requiring less fuel than supplied by the pump, a by-pass connection returns excess fuel to the tank. Pumping unit is rotary vane type—quiet running. Has built-in, easily cleaned secondary strainer.

Capacities: (Firing rates at 25 ft. suction lift)
Model 2—3 gallons per hour
Model 3—5 gallons per hour
Write for Bulletin No. 224.

DETROIT

FUEL TRANSFER PUMPS PUT NEW 'LIFT' INTO YOUR SALES!

Now is the time to push these new high-profit extras—not only with new heating customers, but with any previous purchaser who does not have these extra conveniences. DETROIT Fuel Transfer Pumps assure sales because they possess the strongest possible customer appeal —*they save work.* Like all DETROIT controls, they are designed right, built right, and proven right—and are certified by the industry's ablest builder of quality controls. Write or phone your nearest DETROIT wholesaler and stock up on these fast-moving, easy-to-sell profit builders.

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time high, the Future Sales Ratings Board arriving at a consensus of 197 billion dollars as the estimated total for this year.

Moreover, "extra" money is on the rise. Year-end income was augmented by the greatest assortment of extra dividend payments in history, pushing the total of interest and dividend payments up to about 17½ billion for 1949, a new record. Wages and salary rates are close to the all-time peaks, and the flow of cash will rise sharply in months ahead, reflecting bigger subsidies, higher wages for military and civilian employes, and coming refunds to veterans of $2.8 billion in wartime insurance premiums.

Huge Reserve of Liquid Assets

Additionally, an enormous $214 billion reserve of liquid assets is in the hands of the public. This is particularly significant to the oilburner industry, for much of oilburner buying is done from reserves. Thus, one cannot brush aside the monumental pile of the nation's savings. The money is there.

Return to a normal position in liquid assets holding, in fact, would entail the expenditure of about $100 billion of the country's individual savings. In 1940 the liquid asset total was about $50 billion, and at the end of the war it was about $151 billion. In other words, savings have gained $164 billion since 1940 and $63 billion since the end of the war!

Currency and checking accounts approximate $75 billion, and, of course, they are the first source people are likely to dip into when they want to buy an oilburner. This total is enough to keep all retail sales going at the 1949 rate for seven months; for perspective, it might be pointed out that if applied exclusively to the oilburner industry, it is enough to keep that industry going at capacity for over 150 years!

Savings accounts total another $55 billion, and in Government securities individuals now have invested more than $70 billion. In postal savings people have laid away another $4 billion.

There are other great savings (and therefore sources of buying power) too, such as the cash value of private life insurance policies, totaling over $47 billion. This includes several billion dollars worth of accumulated dividends or overpayments that policy holders may be willing to draw upon for the price of an oilburner, and it is practically double the cash value of private life insurance policies in 1940.

Favorable Credit Situation

But, even if the public should be disinclined to dig into this reserve, the credit situation is easy. Not only are there unprecedented aggregates available for credit, but there are no restraining legislative acts, such as Regulation W. FHA terms continue to be liberal, with even greater encouragement likely from this quarter in 1950.

The great backbone line of residential construction will give the oilburner industry a new peak of stimulation in 1950. Expenditures for new private residential construction for the full year 1949 approximated $7 billion, compared with $7.223 billion in 1948. The writer's estimate of 1950 expenditures, however, is $7.4, topping all preceding records.

Gains in public residential construction are expected to be much greater percentagewise. Expenditures in this field are estimated at approximately half a billion dollars for 1950, compared with $220 million for the year 1949, and $85 million for the year 1948.

Despite the record-breaking totals of residential construction, the pressure is on for even greater deeds. I know that Leon Keyserling, who is the current top economic adviser to President Truman, feels that current production of homes should at least be *doubled,* with the objective of hitting a rate of around two million homes a year for the next ten years.

That is hitting a fantastic rate, of course, and it is not immediately feasible; nevertheless, in spite of heavy sales and a high level of building activity, an enormous potential market still is in prospect.

Veterans, as representing a substantial segment of the younger generation, continue to lead the demand because only about ten per cent of them thus far have taken advantage of the loan benefits of the GI Bill of Rights.

The record breaking growth in new families in the present decade likewise is highly favorable to oilburner demand. During the 1930-40 decade, there was a growth of 5,182,000 in new families, from 30,000,000 in 1930 to more than 35,000,000 in 1940. Population in this period rose from 122,775,000 to 131,670,000, a rise of 8,895,000 people. In the tremendous 1940-50 decade, however, family units will show an increase of about 8,000,000, with more than 43,000,000 families in 1950, and population over 152,000,000—a gain of 20,000,000 people. The accumulated needs plus new demand from continued growth in families is a strong foundation for oilburner demand.

As far as the prospect is concerned for oilheating by general industry, that, too, is excellent. Present liquidity is record-breaking. Current assets of U.S. corporations, for example, aggregate about $125 billion, including the huge figure of nearly $50 billion in cash and Government securities. This figure weighs against only about $57 billion in current liabilities, leaving a record-breaking total of $68 billion in net working capital!

Some of the Future Sales Ratings Board also see as a favorable factor to oilburner demand the determination and effort of the Government to stimulate a business uptrend, in contrast to former efforts to brake the boom, due to fears of inflation. A big, new, record-breaking economy, with a $300 billion gross national product at least represents a goal.

Five-Star Rating for Oilheating

All the foregoing factors are in the basic line of reasoning by which the Board of Judges of Future Sales Ratings arrived at the conclusion that oilburner sales merit a five-star rating among the 100 leading industries of the United States. Necessarily, the figures presented for 1950 are estimates, and, as such, would be modified by developments like new war scares, a greatly accelerated armament program and/or prolonged strikes.

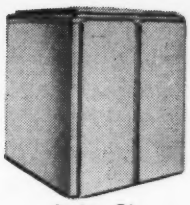
The estimates, however, are the consensus of a highly authoritative Board, which has an outstanding record of 84.0% accuracy in rating the future sales records of the 100 leading industries of the United States over a period

Series A

Steel Air Conditioning Unit with Vestibule and hinged door.

Series H

Utility Air Conditioning Unit. Available with Steel or Cast Iron heating element.

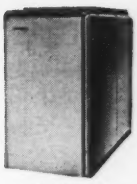


Series CA

Air Conditioning Unit, Cast Iron heating element.

Series G

Gravity Furnace. Available with Steel or Cast Iron heating element.



Series O

***Gun*, Oil Air Conditioning Unit. Steel heating element.**

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THE MOST COMPLETE LINE OF HEATING EQUIPMENT

For all Fuels! GAS·OIL·COAL

Air Conditioning Units... Gravity Furnaces... and Counterflow Units

Both STEEL and CAST IRON Heating Elements

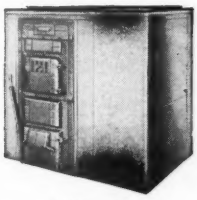
In 1950, it will be easier to sell the Luxaire Line, than to sell against it. The 1950 Luxaire Line of least resistance is the line of greater heating profits for you.

With a heating plant perfectly suited to the requirements of every prospect on your list—architect, builder and home owner—Luxaire provides you with air conditioning units and gravity furnaces; Basement units, Utility units, Counterflow units; heating elements of both steel and cast iron; for all fuels, Gas, Oil, Coal; Units that are approved for either Gas Burning or Oil Burning.

See Your Luxaire Jobber before making any commitments for 1950.

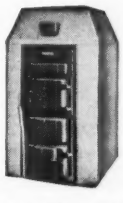
Series VA

***Vaporizing* Oil Air Conditioning Unit. Steel heating element.**



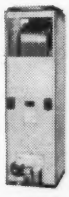
Series AC-F

Air Conditioning Unit. Steel heating element.



Series No. 700

Gravity Furnace. Steel heating element.



No. VHC-75-E

Oil, Counterflow Unit.

No. HC-95-E

Gas, Counterflow Unit.

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Luxaire HEATING & AIR CONDITIONING UNITS

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of the past fourteen years.

The Future Sales Ratings Board operates on the basis that we, as businessmen, are more interested in what is going to happen tomorrow than in what happened yesterday. They try as much as possible to avoid planning on the basis of back statistics or current operations, and attempt instead to plan on prospects.

Considering the growing importance of the oilburner industry in the nation's economy (it will be nearing a half-billion dollar ranking in 1950!) it is doubly pleasant, then, to report that this majority authoritative estimate says that the future looks good for one of the best showings this industry has ever made.

◈

Underwriters' Stop Listing Aluminum Oil Storage Tanks

AN ANNOUNCEMENT in the October 1949 Bi-Monthly Supplement, issued by Underwriters' Laboratories, Inc., Chicago 11, Ill., reveals the discontinuance of listings for aluminum oil storage tanks.

The announcement, referring to a decision made at a recent meeting of the Fire Council of the Laboratories, said:

"Label Service on these tanks was established in January, 1948. It was indicated at that time it was intended only as a temporary expediency, and was initiated because of the shortage of sheet steel used in making this class of tank. It now appears that there is no longer a shortage of the steel required to make inside storage tanks. There is, therefore, no longer a need for Label Service on aluminum inside storage tanks."

◈

California Oil Industry Aided by Heavy Demand

THE STATISTICAL POSITION of the oil industry in California continued to improve throughout November, the Oil Producer's Agency reported to its membership recently, with the improvement attributed to seasonal increases in demand for stove and heating oils and for residual fuel oil, together with reduction in supply. The report, based on preliminary weekly figures of the American Petroleum Institute and the U. S. Bureau of Mines, estimates November demand at 1,014,000 barrels per day, with supply at 969,000 barrels per day, resulting in a withdrawal of 45,000 barrels per day from present high inventories.

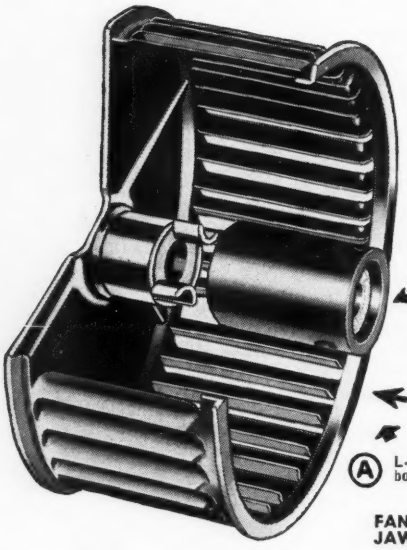
The report stresses, however, that the present improvement is due entirely to seasonal factors which account for peak demands for fuel oils. Adding to the high seasonal demand are the present temporary fuel shipments to the East Coast, which, during November, are estimated at 62,000 barrels per day, or more than the total withdrawal from storage during the month.

The agency report also summarizes final industry results for October, based on the U. S. Bureau of Mines report, "The Petroleum Situation in District V." In that month, total demand for California oil was 1,003,000 barrels per day, with supply at 969,000 barrels per day, resulting in withdrawal from stocks.

Save TIME • Save LABOR Save COSTS!

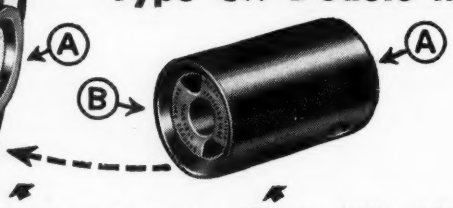
by coupling your oil burners with

LOVEJOY L-R FLEXIBLE COUPLINGS



"Standard in this industry" is testimony won by years of Lovejoy performance — long, trouble free service — ease of installation — *economy.* Here is *positive* correction for misalignment, shock, surge, vibration, backlash, *with extreme quiet.*

Type CX Double-flex



A L-R Body inserted (not bonded) in rubber body.

B L-R Socket actually molded in the rubber (no metal) engages blower hub.

FAN MANUFACTURERS SUPPLY BLOWERS WITH L-R JAWS ON BLOWER HUBS AT NO EXTRA COST.

Easy installation in close quarters

In close or dark quarters Lovejoy's simple assembly makes installation quick, sure and easy! The CX Double-flex cannot fall off when blower and pump units are serviced. The coupling fits tightly, always free from rattle. Here is fool-proof, maintenance-saving, coupling for pumps, fans, blowers, power transmission from motor to equipment!

Get all the details in Lovejoy Bulletin 530. Phone, wire or write.

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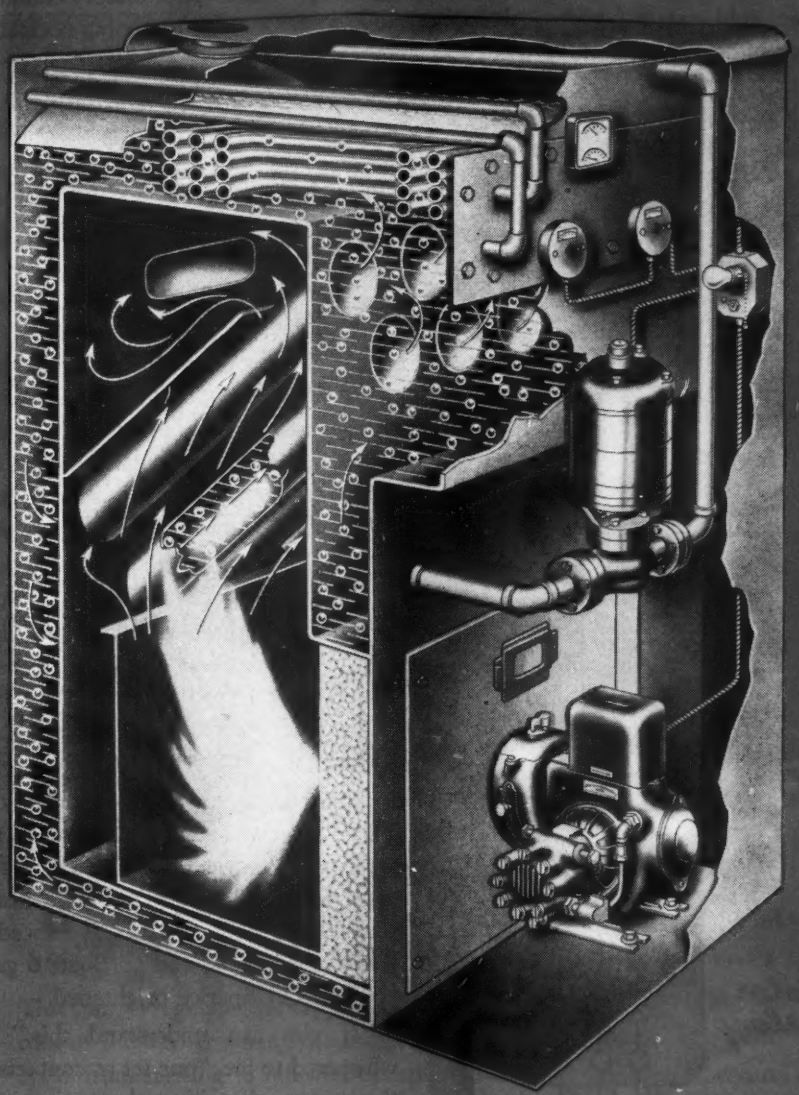
LOVEJOY FLEXIBLE COUPLING CO.

5012 W. Lake Street • Chicago 44, Ill.

Mfrs. of Lovejoy Flexible Couplings for all industrial services, Lovejoy Variable-Speed Transmissions and Lovejoy Universal Joints.

NEW PENSTEEL *"Steals" the Market* with LOWEST PRICE POSSIBLE for a GUARANTEED, Quality Packaged Unit!



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Reduced manufacturer's profit to expand manufacturer's volume, permits you to price the Pensteel *low* — yet offer the only unit of its kind that's *completely* packaged. What's more — so proud... so sure... is Penn of the quality built into this new heating unit that it backs the Pensteel Boiler with a five year guarantee against defects of material and workmanship.

Installation costs are reduced by Penn "Packaging." Automatic hot water all year round is provided by tank or tankless coil built right into the unit. Steel boiler is designed... not adapted... to the requirements of modern, *automatic* heat.

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THE NEW PENSTEEL... *designed*... not adapted... to modern automatic heating requirements.

PENN BOILER and BURNER MFG. CORP.

LANCASTER, PENNSYLVANIA

All They Want is Perfection

Blow-by-Blow Account of the Life of a Service Man

by
J. W. Schulz

I'VE JUST RETURNED from a sentimental though unscheduled excursion to oilburner servicing. After being in and out of basements for years without spending a full day at it and without ever going into a basement just to watch the service man, I ran into Sparky yesterday and with his help changed all that.

Arriving at 8 AM at a friend's house to accompany him on a business trip, I found him half dead with a head cold, his burner entirely dead, and his wife alive with hope that the service man would arrive any minute.

"I've brought a beautiful morning with me!" was the yell from the back door as we shivered over our third cup of steaming coffee. Sparky had arrived.

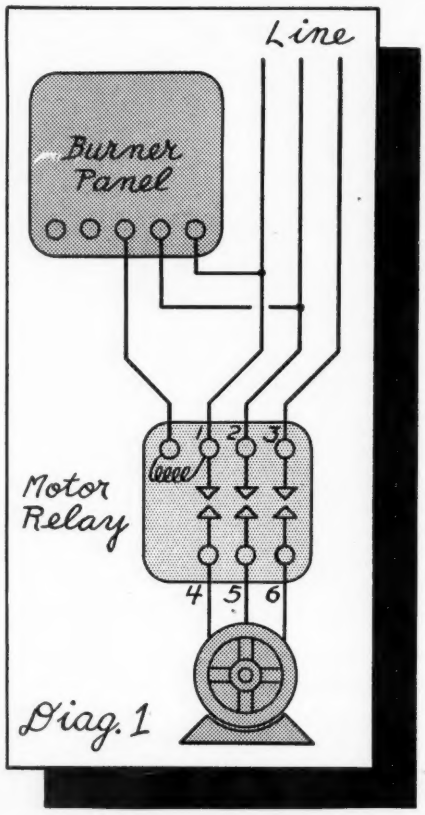
Sparky was receptive when I joined him in front of the cold furnace to give him a chance to diagnose and start work. My confessed interest in burners obtained an even warmer welcome from him.

"Nowadays it's not the burners that give us service men the most trouble," he straightway confided. "Not that a man should go around not knowing burners. It's the people in the houses that give more bother than anything. You can't ever get to know enough about them. All they want is perfection."

My friends who owned the ailing burner were, for example, squeamish I learned. Wouldn't even come down the basement any more and press the safety button to find out if that would give them heat for the moment. Sparky thought I'd better talk to them about that.

"I've got to tell you first," he cautioned, "that things were not always this way in this house. Years ago the Lady would jump down here and hit the safety button happy as a lark. About ten years ago she hit it once and then stood there by the smokepipe waiting to hear the flame light up. The burner motor started right away but the spark was weak or something and oil squirted into the firebox a little while before things happened. Blamed everything on me, somehow or other, even though I was friendly like and told her to use cold cream. I remember that worked when I was a kid; I was taking a bath with an oil stove in the room, didn't notice it was smoking, and came out black enamelled. Cold cream helps. But she wasn't interested in what I was telling her then. She's just like everybody. All she wants is perfection."

I decided then to let my friend upstairs go back to bed with his head cold. I could stay with the service man all day, I learned on questioning him. That's when I learned his name was Sparky. He had gained this name some 20 years ago because, hypnotized by the big spark given by burner ignition transformers, he had spent much spare time in the shop rigging up fancy spark arrangements on the work bench and just sitting there watching them spark.



Purposely, I never did find out what had caused my friends' oilburner to stop. They didn't ask either. Sparky didn't like people to ask, I learned later.

We, Sparky and I, had to rush to the next place on his list, which turned out to be an office and factory building which was cold because a big horizontal rotary cup burner would not start.

"I've brought a beautiful morning with me!" Sparky yelled as he entered the big boiler room. He pressed the safety button of the wall-mounted burner control panel. It clicked, and when he took his finger off it some relays in the panel snapped in. But the burner did not start. He pushed the overload button on the motor starting relay. The relay crashed in, the burner motor hummed but did not start, and he hastily threw open the main switch. The motor was not frozen, he found out in a moment. Its shaft could turn freely.

Working on a layout similar to Diag. 1, Sparky pressed the control panel safety device to its on-safety position, then used a test bulb to check points 1, 2, and 3 for a dead line. He was thinking of a blown fuse, but each line gave him a light.

"Only hope it's not the motor gone dead," he whispered, unhooking the three motor wires at the motor. After re-setting the safety button and causing the motor relay to bang on, he speedily tested points 4, 5, and 6. Point 6 gave no light, so Sparky brightened.

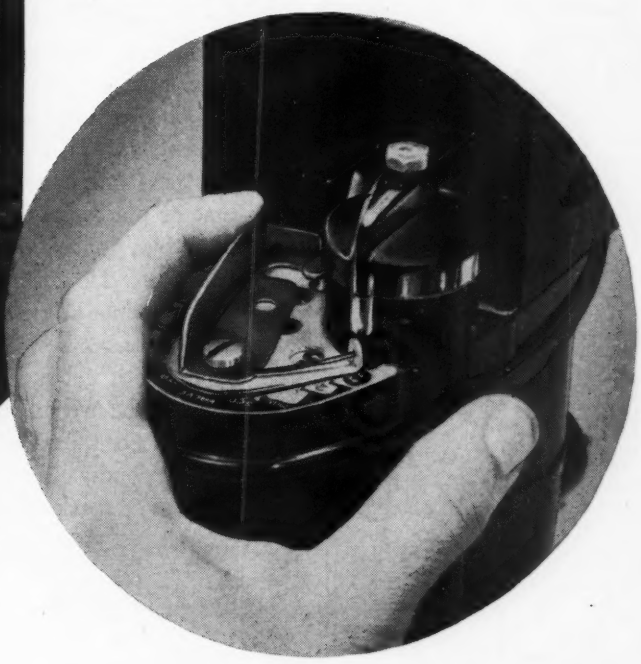
"If you can understand this," he whispered to me, "one set of contacts in this motor relay, it's a three-wire polyphase motor, is failing to close. It'll be fixed in a minute, after I bend and polish up the points so they close when the relay goes on."

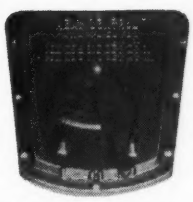
Local Advice

A worried looking man rushed into the boiler room at that moment, brushed aside three workmen watching Sparky, and demanded to know if heat would be on at once. Speaking sharply and as though this proved something, he told

NEWS! Electric power failure can't cripple H.C. Little self-lighting oil floor furnace

The kind of weather that brings down the power lines is no kind of weather to be without heat! No wonder there is extra sales appeal in this electrically controlled H. C. Little oil floor furnace that can be operated manually when electric power fails.





H. C. LITTLE CATALYTIC HEAT CONTROL IS ANOTHER BIG SALES FEATURE

This control regulates the supply of air through the roof of the burner during the complete operation cycle, from starting to full fire. Complete carbon-free combustion with catalytic oil is achieved and the flame burns above the top burner ring inside the combustion chamber.

HERE'S HOW IT WORKS:

On top of the oil valve is a manual reset lever, pivoted at the front and under spring tension. For manual operation, the reset lever is pushed to the right, raising the blade on the heat motor. This permits regulation of the oil flow by means of the manual oil control knob. When electric power is resumed, the reset lever springs back to its normal position and fully automatic operation is resumed.

Address inquiries regarding dealerships to Dept. 1

PUT THESE SALES FEATURES TO WORK MAKING MORE MONEY FOR YOU!

H. C. Little Burner Company

SAN RAFAEL, CALIF.

Or contact the Factory Representative nearest you:

Baltimore, Md.
Belmont, Mass.
Boise, Idaho
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Columbus, Ga.
Des Moines, Iowa
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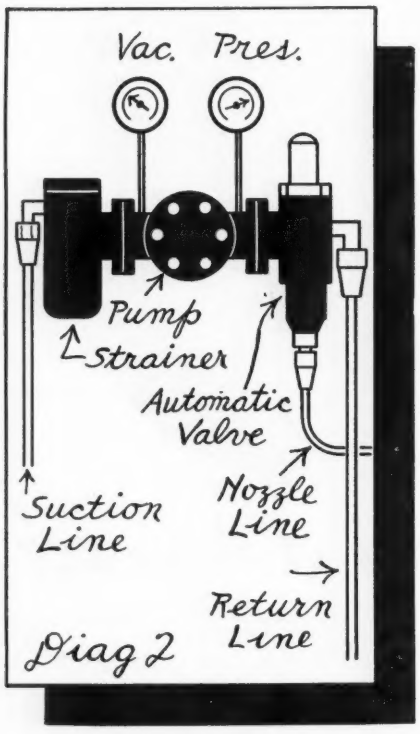
Newark, N. J.
Portland, Oregon
Prescott, Ariz.
Reno, Nevada
Salt Lake City, Utah
Seattle, Wash.
St. Louis, Mo.
St. Petersburg, Fla.

Sparky that in seven years the burner had never stopped like this.

Sparky said, "You want me to fix it, don't you?" and went on working as before.

He adjusted the flame to be larger after he had the burner running, to give them heat in a hurry, he explained. Next day or so he would stop back and set it the proper size again. He had to come back again for an hour or two and check over the job thoroughly, as he saw it only once every two or three years when it needed servicing, thus it now needed strainer cleaning, check-up on motor lubrication, and testing of all the controls particularly the safety and low-water controls.

"Did you see him try to blame the breakdown on me?" Sparky muttered.



Diag 2

"One breakdown in seven years, aside of course from a few calls having nothing to do with a complete breakdown, and he starts hollering at me. All he wants is perfection."

It was 10 AM when we arrived at a large pressure burner heating a private school building.

As Sparky told him he had brought a beautiful day, the jerky little man who owned the school escorted us to the boiler room. He was dressed immaculately but his hands were a little dirty. As we walked, he kept talking about the burner's misbehavior, how he had first noticed it at 7 AM, and what possibly could be wrong with it. Perhaps the pump was not developing its usual oil pressure, the nozzle was partly clogged again, the strainer in the fuel unit was plugged, the motor was temperamental, or a different kind of oil had been delivered last week.

Out of My Hair

"Doc, you'd better let me worry about all that," Sparky recommended in a considerate, soft voice. "Don't you ever touch the burner again after the complications you got into last time."

To me he said as an aside loud enough for Doc to hear, "He took out the nozzle but put it back only finger-tight. You know how so often these cheap connectors on the high tension cables have to be bent with pliers to make them grip? Doc here didn't know that, and every time he put back the gun tube assembly the cables unhooked from the electrode assemblies. He got no spark at all. For a week while he tried to lick the thing himself, he got heat only when he lighted up with a bunch of blazing newspaper in the firebox.

"Can't be the oil, of course," he went on more loudly. "I work for the oil company. The spark may be weak or something."

We found the burner running. Sparky put gauges on, as Diag. 2 shows, and read no vacuum and 95 lbs. pressure. Unhooking the return line, he found the fuel unit was returning ample oil to the outside tank. This and the vacuum gauge reading satisfied him that the strainer was not plugged. The nozzle wasn't plugged either, he ascertained, and the spark points were set properly.

The fact that he could tighten half a turn on an Allen setscrew in the pump-drive flexible coupling caused him to wonder if earlier the coupling had been slipping, causing the pump shaft to run at low speed. After another 15 minutes of checking, he assured Doc the the burner was all right now, warned him again never to work on the burner himself, and we left.

"The Doc's all right," he told me as we climbed into his car. "He just worries. I knew the burner was okay, but I always check thoroughly because he buys oil for seven burners he owns. I'm always thinking that sometime something will be wrong when he calls for service. If that ever happens, I'll have to be on my toes and find the trouble or he'll switch to another oil company sure as shooting.

"I'm worrying right now because after I said the spark may be weak or something I forgot to check it. If he happens to think about that, he'll get the office on the telephone, tell them I bungled, and have me back there tomorrow.

"It's the people in the houses that give more bother than anything," he sighed. "All they want is perfection."

A phone call to his headquarters having instructed him to rush to a town 22 miles away, Sparky pushed his gas pedal down to the floor boards and shot us down a concrete highway at about 80 miles an hour.

Make It Brisk

I would wait outside on this call, he instructed me, because the woman who owned the house wanted things sharp and businesslike. She'd had Sparky fired about 12 years ago. Times were tough then, too. Answering a service call, Sparky was slouched against the back of the house with a cigarette drooping from his lips when she finally opened the door. She said that looked disrespectful, one thing led to another, and he was fired because she told the office never to send him to the house again.

"What she told my boss, I'll never know," Sparky said. "Maybe she was not definite about the way I was disrespectful, so maybe he got the wrong idea. Probably he figured I'd been chasing her around the house or something. He knows her, and she does make a man look twice.

"She felt sorry after I got fired, so started to take oil and service from me right away when after a few weeks I started working for another company. Got me a few other accounts, besides. Always has hot coffee ready for me when I arrive on a call, and offers me liquor, which I don't touch unless it's my last call of the day."

I waited outside the house more than an hour. The burner was sick when Sparky arrived, needed nozzle cleaning and complete tuning and checking. He'd had a good lunch while he worked, but would have coffee while I ate lunch now

CHECK THIS MONEY SAVING PACKAGE!!!

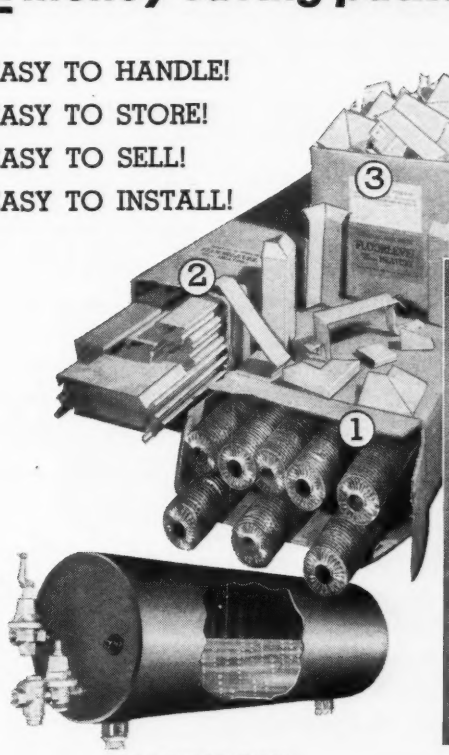
"FLOORLEVEL"

HOT WATER BASEBOARD OIL HEAT

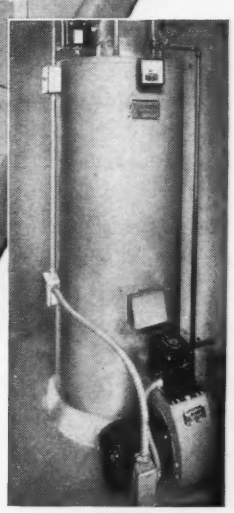
THIS IS THE RADIATOR

A COMPLETE INSTALLATION
in ONE money saving package

EASY TO HANDLE!
EASY TO STORE!
EASY TO SELL!
EASY TO INSTALL!



DE-AIRATOR TANK



"J" Series
BOILER-BURNER UNIT

The Complete Floorlevel Package is packed in 3 cartons: (1) Heating elements, (2) Baseboard front panel and top moulding, (3) All miscellaneous fittings . . . Packaged in 5 different sizes for 200, 233, 263, 300 and 333 sq. ft. radiation . . . for all size homes.

Designed for use with either the **J-3 Boilerburner** (up to 600 sq. ft. radiation) or the **"T" Series** (up to 1610 sq. ft. of radiation)...or with all other hot water heating systems.

De-Airator Tank Unit available for use with the following size installations: 500, 1000, 1500 sq. ft. of radiation.

Circulators, flow valves and controls in required sizes.

Send for SPECIFICATION 56-A

Since 1923

GENERAL Automatic

GENERAL AUTOMATIC PRODUCTS CORPORATION, 2300 Sinclair Lane, Baltimore 13, Md.

Formerly General Oil Burner Corporation

fueloil & oil heat

because it was nearly 2 P.M.

"Embarrassing moments servicing burners?" Sparky repeated after me as we sat down in a diner. "Only a few thousand in 20 years," he said philosophically, and no crystal gazing was needed to see I'd started something.

Psychiatry Too

Sparky's first taste of an embarrassing moment servicing burners had come when a smart young mother had asked him to scare Junior for her. More determined to oblige than skillful at this, he had grabbed screaming Junior, while the mother grimly smiled her approval, and locked him in the back of his service truck, only to have Junior's father arrive and demand an explanation, which Sparky had to give without any help from the mother.

"Then there was this other boy about four years old," he recalled, "and me proud with my brand new, three-cell Orsat analyzer, and the polite young mother who asked me when I went down the cellar could the boy watch me and would I take good care of him. She was pretty, too, and awfully shy."

The moment Sparky opened his gas analyzer and about ten feet of new rubber tubing sprang out and uncoiled on the basement floor, the boy started running upstairs, screaming at the top of his lungs, "Mother, this bad man is trying to give me an enema!"

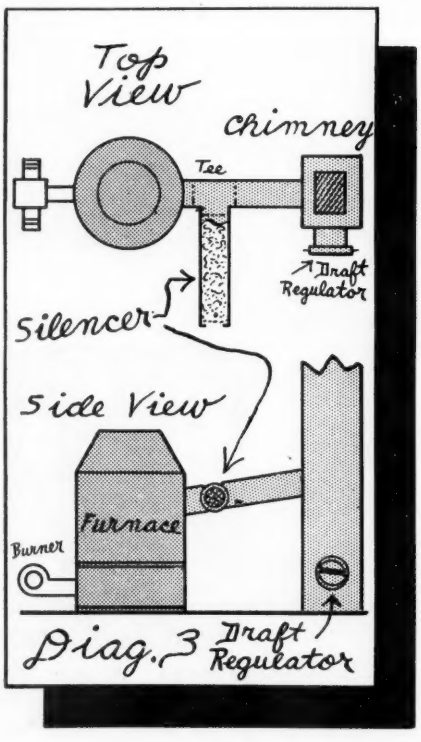
"I figured if I chased after him to explain I really wasn't," Sparky said dolefully, "I'd only make the kid more scared and make things worse. I figured when I left I'd maybe mention on my way out that the kid got the wrong idea. But when I left there was no answer though I called a few times from the kitchen, and we never got another service call from that house."

By four that afternoon, Sparky and I had tended to two more service calls. A clock thermostat off calibration was involved in one. Set for 70, the thermostat provided 70 according to the thermometer on it. But because the house still felt chilly and hadn't felt chilly with the old plain thermostat set at 70, the smart lady of the house had bought a good, accurate thermometer and hung it a few inches from the thermostat. This read 66 to 67, instead of 70. Sparky fixed the thermostat so that the new thermometer would read 70 with the thermostat set for 70, and told the woman to disregard the inaccurate thermometer that was part of the clock thermostat. She still complained, but he insisted he could do no more.

"Beefing about a few degrees room temperature," Sparky snorted when the woman was out of the room. "The way she whines and whimpers about it won't get her any place with me. She thinks everything ought to be perfect!"

The other call we answered before four was caused by fuel unit trouble. By lowering the atomizing pressure, Sparky hoped to squeeze a few more hours of operation from the badly abused ten-year-old fuel unit. He told the owner he would return with new parts tomorrow, and that would end the trouble for a year or two.

Our last call was made because Sparky had to check back anyhow on this job, besides wanting me to see the silencing arrangement shown in Diag. 3. To eliminate flame noise that had come from the draft regulator mounted on the smokepipe, he had removed the regulator and installed it in place of the chimney flue clean-out door. To end starting and stopping pulsation once and for all time, he had installed the silencer. Consisting of six feet of smokepipe, loosely packed with rock wool held in place by screening and wires through holes in the smokepipe, this silencer was hooked to the smokepipe tee formerly used for the draft regulator.



Diag. 3

"I don't care if you did get into a crap game with our salesman in your territory.. Nelson had no right to bet his job!"

This rig, well demonstrated on the installation, is Sparky's pride and joy.

"You can't hear the flame now, and you can't get any kind of vibration or pulsation from it!" he exclaimed, aglow with enthusiasm. "This gives 'em the kind of performance burner owners want today!"

I nodded assent.

Suddenly he said, as if a new thought had come to him, "You know what they want today?"

Trying to recall something, I said slowly, "Is it: All they want is ....?"

"Perfection!" he roared. "That's it. And I'm just the guy that can give it to them!"

◈

Esso Urges More Dealer Storage For Fueloils

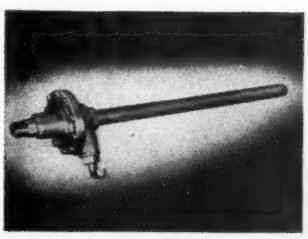
GREATER BULK STORAGE for fueloils was urged on dealers and distributors in a recent letter by Stanley C. Hope, president of Esso Standard Oil Company, to the firm's independent distributors. The additional storage is needed, he pointed out, to help absorb seasonal fluctuations in demand, and warned that it was uneconomic to meet the seasonal problem principally by greater storage capacity at refineries and by adjusting refinery yields. Dependence on these measures alone would cause unnecessary seasonal fluctuations in crude oil production and disturb refinery employment, he said.

Esso is going into the 1949-50 heating season with the largest inventory of heating oils in its history, Mr. Hope said, about 2,500,000 barrels more than was "thought adequate" a year ago. He also pointed out that the company had increased its own heating oil storage by 52,000,000 gallons this year.

NO OTHER
Oil-Fired Equipment Can Match Electrol

Complete Line: Oil Burners • Air Conditioners
Water Heaters • Boilers

Nobody Else Has These Exclusive Sales Features!
Entirely Different Burner!

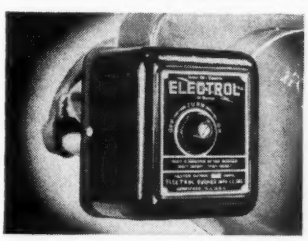


Cut-Off Valve

No other burner has this quick shut-off valve at nozzle. No oil drooling. No fouled nozzles.
No after drip. No costly magnetic valves needed.
Less service.

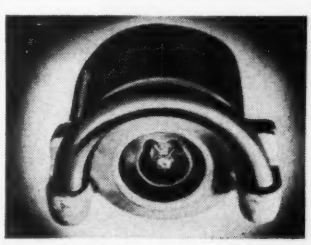
Ball Flame

No other burner has this suspended intense flame. Rotating fire never touches wall of chamber.
Burns 100% "cat-cracked" oil without adjustment.
Cleaner Boilers. Less service.



Master Control

No other burner has a control operating on clean air instead of corrosive flue gases. Burner mounted, wired and tested at factory.
No relays. No transformers.
Less service.

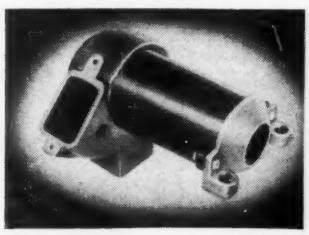


Thermo-Loop

No other burner has this pure nickel heat exchanger.
Operates safety control on pure air.
Located right in combustion chamber.
Constant performance regardless of flue gas temperature.
Less service.

Dealers!
You'll Find Electrol Easier to Sell!
. . . Exclusive Agencies Available!
WRITE TODAY!

SINCE 1918
ELECTROL
BURNER MANUFACTURING CO., INC.
Rutherford New Jersey
FAMOUS BALL FLAME EFFICIENCY



Spiralon

No other burner uses a large expensive casting to deliver air to combustion head. Because of this, no other burner has Electrol's intense flame.
Highest alloy flame director.
Prevents burnt air tubes. Less service.

Weather and Export Declines Eased 1949 Oil Operations

In a year-end review, American Petroleum Institute, New York 20, N. Y., reported that operations of the oil industry, while booming along at near-record levels in 1949, fell short of equalling the all-time record highs set during 1948. The relatively warm weather in both the first and last quarters was the primary reason, reducing as it did the consumption of fueloil in areas normally demanding large quantities. Since the anticipated increase for which the industry had prepared did not materialize, this resulted in curtailment of refinery runs, production output and drilling activity.

Also, exports declined another 40,000 barrels per day on the average, continuing the downward trend of the past five years. The decline is explained as the result of post-war restoration of refinery operations overseas and stepped-up production in the Middle East, much of which goes direct to Europe. Total fueloil production during 1949, estimated at 760,000 million barrels, dropped for the first time in more than a decade, while production of motor fuel increased to a total of 960 million barrels. It was this increase primarily that pushed domestic demand to a new peak despite the general cutback.

Total consumption for the year, including exports, reached 6,105,000 barrels per day, compared with the all-time high of 6,129,000 barrels per day last year. Production of crude oil in the United States was estimated at 1.8 billion barrels, down 176 million barrels from last year's peak. With production of natural gas liquids up 7,500,000 barrels to 153 million for the year, total production of liquid petroleum in the country is estimated at 1.9 billion barrels, a decrease of 188 million barrels under 1948 production.

Drilling Pace Holds

Drilling activity continued at almost the same pace as during 1948, while wildcat activity increased 9%. This factor is expected to give a healthy boost to the total nation's proved reserves. In Wyoming the deepest well ever drilled reached a depth of 20,500 ft. before operations were suspended.

The total of new discoveries and extensions of pools will not be available for several months, but it is expected to exceed the 1948 figure when the total added up to more than 4 billion barrels, of which 2 billion were added to the store of proved reserves available for consumption at any time. Proved reserves in the country at the end of 1948 reached an all-time peak of almost 27 billion barrels.

Research, expansion and modernization programs proceeded in 1949, with investment of capital funds again exceeding 2 billion dollars for the third straight year. Refinery capacity was boosted another 73,000 barrels per day and rose to 6,550,000 barrels, an all-time high.

In Winter Air Conditioners . . . it's the

GUTS

that count!

The heating element is the guts of any heating system. For quality and dependability of performance, cast iron remains unsurpassed. That's why WISE furnaces, with heating elements built entirely of cast iron, assure you of trouble-free performance and customer satisfaction.

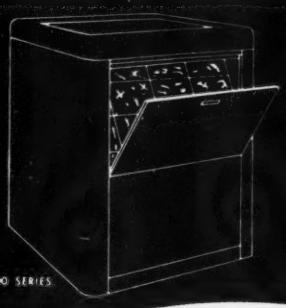
Top efficiency in operation is assured by the unique design of the WISE oil furnace radiators. The radiator tubes provide greater heating surface and long flue travel, thus getting full benefit of the heat generated by the burner.

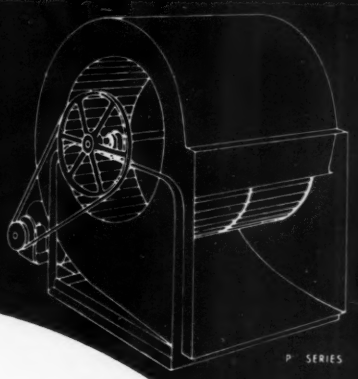
WISE furnace jackets are attractive and modern in appearance, and the units are available either with or without oil burners.

Write for full information today—here is a line with features you can SELL!

THE WISE FURNACE COMPANY

AKRON OHIO

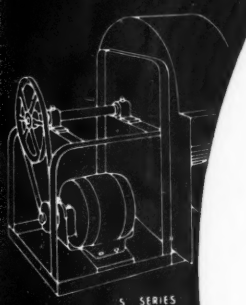




. . . and now

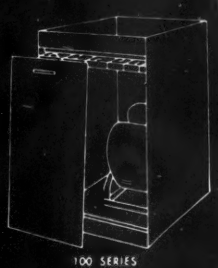
The HORIZONTAL Brundage AIR-RENEWER

FRESH AIR CLEAN AIR—PROPERLY HUMIDIFIED—BACTERIA FREE



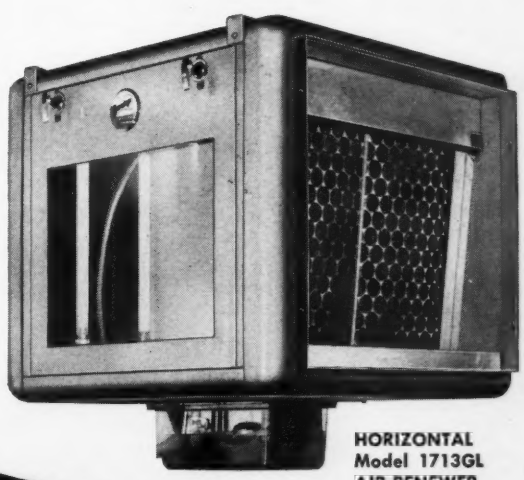
For the forced warm air furnace a ceiling type (horizontal) Air-Renewer has been created. Air humidification, purification and cleaning can be had by installing the glycol-filter compartment unit (illustrated below) with any heating or cooling system where a blower is already an integral part of the system. It is completely factory assembled, space saving and dollar saving to your customer. This low cost, easily installed unit, employs a simple, positive, trouble-free mechanical process.

Get all the facts now about this fast-growing market. Learn how you can make bigger profits in 1950 installing complete indoor living comfort—the Brundage Air-Renewer!



AIR CIRCULATION

Where a blower is not part of the system a 700 Series Vertical Model (Floor Type) may be used, or a matching blower compartment may be added to the horizontal Air-Renewer.

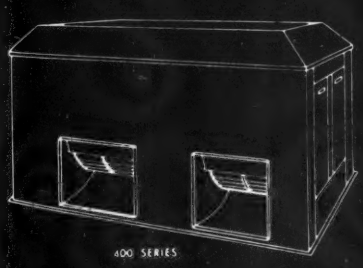


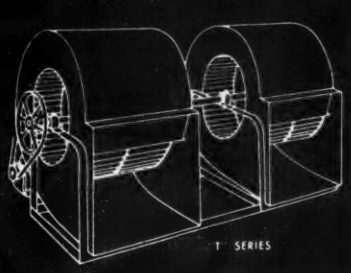
HORIZONTAL
Model 1713GL
AIR-RENEWER

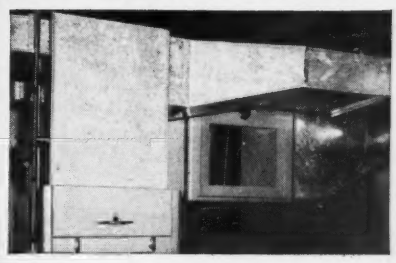
Brundage COMPANY

Blower Specialists Since 1919

541 NORTH PARK STREET
KALAMAZOO 11, MICHIGAN







Typical installation, with a 100,000 B.T.U. forced warm air furnace.

Three-Fourths of OHI Show Space Reported Reserved

INITIAL OFFERING of exhibit space for the National Oil Heat Exposition, to be held in Philadelphia, April 24 through 28, has resulted in heavy reservations, according to Oil-Heat Institute of America, Inc., New York 16, N. Y., sponsors of the Show. Almost 75% of the allotted exhibit space has been contracted for by manufacturers of oil-burners and accessory equipment, with a number of applications pending for the remaining space.

The gathering at Philadelphia will include the Institute's 27th Annual Convention, along with the Exposition. The program is being formulated now, and, in addition to the regular meetings and election of officers and directors, the meetings also are expected to include a series of merchandising and technical sessions.

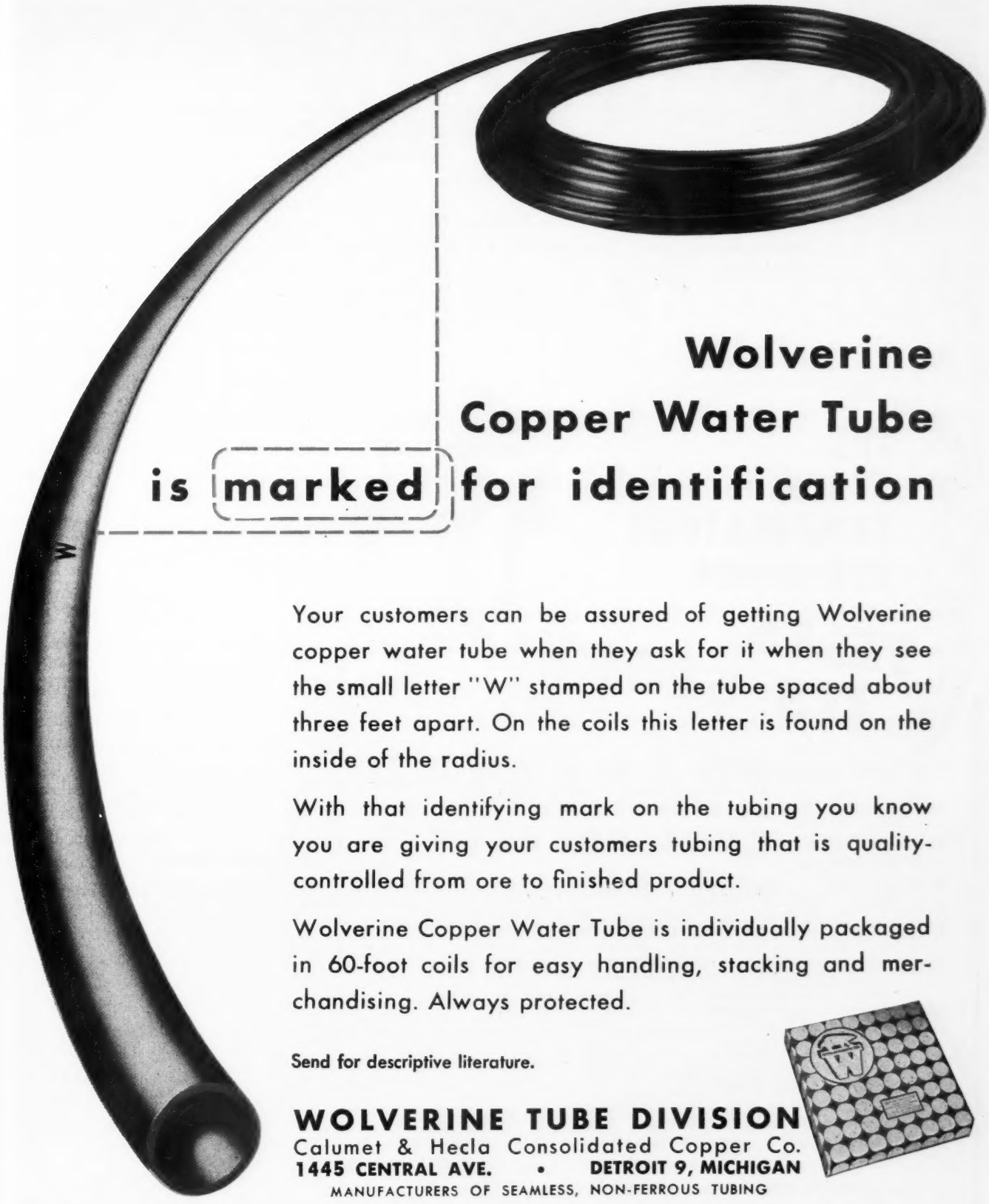
A list of manufacturers who had reserved exhibit space as of December 29, 1949, follows:

List of Exhibitors*
NATIONAL OIL HEAT EXPOSITION
Convention Hall, Philadelphia
April 24-28, 1950

Exhibitor	*Space*
Aldrich Co.	337-341
American Artisan	342
Applied Mechanics Co.	618
Automatic Devices Co.	656
Bacharach Industrial Instrument Co.	237
Bell & Gossett Co.	517
Bethlehem Foundry & Machine Co.	333
Brown Products Co.	639
The Brundage Co.	533
Burnham Corp.	417
Century Eng. Corp.	412
Cole-Sewell Eng. Co.	540
Commercial Filters Co.	537
Columbia Boiler Co., Inc.	552
Delavan Eng. Co.	351
Delco Appliance Div.	550-501
Dielectric Products Co., Inc.	113
The Dole Valve Co.	447
Domestic Engineering Co.	217
Eckhart Mfg. Co., Inc.	538
Eddington Metal Specialty Co.	525
Electrol Burner Mfg. Co., Inc.	234
Fairbanks, Morse & Co.	344
Federal Oil Burner Co.	121
Field Control Div.	611
Fitzgibbons Boiler Co., Inc.	307-309
Fluid Heat Div.	326
FUELOIL & OIL HEAT	507
Fuel Oil News	446
General Electric Co., Air Conditioning Dept.	526
General Electric Co., Apparatus Dept.	239-241
General Filters, Inc.	133
General Fittings Co.	443
General Automatic Prods. Corp.	512
General Oil Heating Corp.	115
Gulf Oil Corp.	318
Hajoca Corp.	628
Harbison-Walker Refractories Co.	359
Harvey-Whipple, Inc.	511
The Heil Co.	534-536-633-635
Herco Oil Burner Corp.	311
Iron Fireman Mfg., Co.	308
Jackson & Church Co.	615
Jefferson Electric Co.	343
S. T. Johnson Co.	612-614-616
The Kent Co., Inc.	134
Master Plumber & Heating Contractor	240
May Oil Burner Div.	411
McDonnell & Miller, Inc.	317
The Mercoid Corp.	438
Minneapolis-Honeywell Regulator Co.	600-606-608-610
Monarch Mfg. Works, Inc.	441
Morse-Smith-Morse, Inc.	444
National Airoil Burner Co., Inc.	211
The National Radiator Co.	418
Oil Equipment Mfg. Corp.	620
Penn Electric Switch Co.	459
Perfex Corp.	312
Prat-Daniel Corp.	345
Preferred Utilities Mfg. Corp.	105-107-109
Quaker Mfg. Co.	408
Quiet Automatic Burner Corp.	637
Radiant Utilities Corp.	621
The Rajah Co.	111
Rochester Mfg. Co., Inc.	348
Scully Signal Co.	200

*As of December 29, 1949.

The Customer Always Returns
General
FUEL OIL FILTER
DE LUXE MODEL
2A-300
Model 2A-300 for exceptionally dirty tanks and large furnaces and boilers. 9-1/16" high; 5-1/2" diameter; 3/8" pipe openings.
FOR YOUR PASSENGER CAR OR TRUCK
General Filters are now available for your car or truck. Cartridges changed in one minute without tools. Complete kits include brackets for either engine or dash mounting. Put one on your car and truck. Regular dealer discounts.
General
FUEL OIL FILTER
STANDARD MODEL
1A-25
Model 1A-25 for space heaters, hot water heaters and small furnaces. 4-3/4" high; 3-1/2" diameter. Same style but with double capacity available as Model 2A-700.
You can be sure of repeaters when you sell a General Filter because the customer is always pleased with his money saving investment. So pleased, that it is natural for him to return year after year for a new cartridge. And your profit doesn't stop at the initial sale; it goes on and on with only a minimum of service from you.
A General Filter on every fuel oil burning installation is a good deal for both you and your customer — you make a nice profit on every sale and your customer is saved annoyance and expense from clogged burners.
MORE THAN 1600 JOBBERS TO SERVE YOU
GENERAL FILTERS INCORPORATED
GENERAL FUEL OIL FILTER
12890 WESTWOOD AVE. DETROIT 23, MICHIGAN
CANADIAN FACTORY BRANCH: CANADIAN GENERAL FILTERS, LTD., 173 STRACHAN AVE., TORONTO 3, ONTARIO
VISIT US AT BOOTH 426 SOUTHWEST AIR CONDITIONING EXPOSITION



Wolverine Copper Water Tube is marked for identification

Your customers can be assured of getting Wolverine copper water tube when they ask for it when they see the small letter "W" stamped on the tube spaced about three feet apart. On the coils this letter is found on the inside of the radius.

With that identifying mark on the tubing you know you are giving your customers tubing that is quality-controlled from ore to finished product.

Wolverine Copper Water Tube is individually packaged in 60-foot coils for easy handling, stacking and merchandising. Always protected.

Send for descriptive literature.

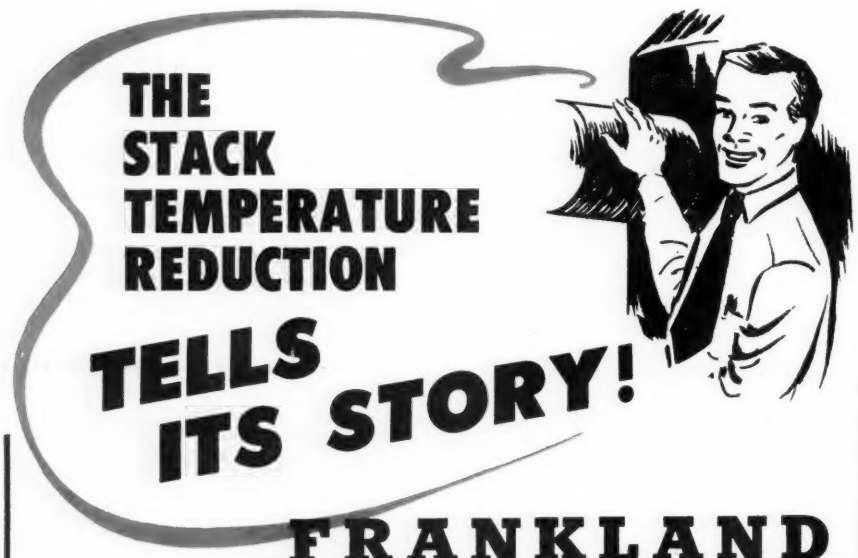
WOLVERINE TUBE DIVISION
Calumet & Hecla Consolidated Copper Co.
1445 CENTRAL AVE. • DETROIT 9, MICHIGAN
MANUFACTURERS OF SEAMLESS, NON-FERROUS TUBING

Plants at Detroit and Decatur, Alabama

Stocks Available at all Wolverine Mill Depots
DETROIT, MICH. • DECATUR, ALA. • HOUSTON, TEXAS
LOS ANGELES, CALIF. • LONG ISLAND CITY, N.Y.

Sales Offices in principal cities

Exhibitor	Space
Shell Oil Co.	452
Sid Harvey, Inc.	634-636
Silent Glow Oil Burner Corp.	559-560
H. B. Smith Co.	518
S.O.S. Products Co.	125
Sparkler Manufacturing Co.	622
Sun-Ray Burner Mfg. Corp.	422-426
Sundstrand Engineering Co.	442
Sundstrand Hydraulic Div.	233-235
Super Electric Products Corp.	420
Swirling Heat Corporation	624
Taco Heaters, Inc.	218
Thatcher Furnace Co.	508
H. A. Thrush & Co.	100
Timken Silent Automatic Div.	350-352-449
Toridheet Div.	321-325
Tru-Heet Co.	252
Tuthill Pump Co.	626
U. S. Machine Corp.	222-226
U. S. Radiator Co.	522
V. & E. Products, Inc.	117-119
Waterfilm Boilers, Inc.	208
Watts Regulator Co.	221
Webster Electric Co.	434
White-Rodgers Electric Co.	127
Williams Oil-O-Matic Div.	334-338-437
York-Shipley, Inc.	638-640-642-644-646-648-650-652-654



THE STACK TEMPERATURE REDUCTION TELLS ITS STORY!

FRANKLAND
DIRECTIONAL FLOW CONTROL
FUEL CONSERVOR

★ Dealers — Here's a Profitable Heating Item! ★

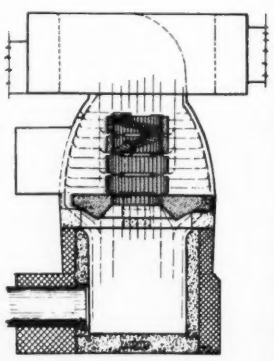
for use with conversion burners

Tell your conversion burner customers about the Frankland Fuel Conservor. It's a money-saving story that will win you lasting customer goodwill, and your sales will get a healthy boost, too. The laboratory-tested and proved Frankland Fuel Conservor delivers hotter, steadier heat because it directs the super-heated gases to the point of contact where they are used for actual heating. The Frankland Fuel Conservor LOWERS STACK TEMPERATURE and brings home-owners savings up to 40% on their oil bills. Economically priced (the Conservor pays for itself within a few months), the Frankland Fuel Conservor is not a baffle, but a directional flow control. Easily installed. Also applicable to gas conversions.

Interested? — Then Write Promptly for Complete Information About This New Heating Sensation.

A few large area warehousing distributorships are still available.

FRANKLAND CORPORATION
2640 GOODRICH AVENUE
FERNDALE 20, MICHIGAN



Scrubbing action against the sides and top of the furnace imparted to ALL the gases insures maximum heat transference to the house, not out the chimney.

Hilts Sees Danger In Expansion Of Natural Gas

HARRY HILTS, executive secretary of Empire State Petroleum Association, Atlantic Coast Oil Conference, and a member of the National Petroleum Council, writing in the New York association's paper, ESPA, has opposed the unrestricted expansion of natural gas into areas historically served by fueloil. An editorial in the November issue sees danger in the unrestricted influx of cheap natural gas into areas of heavy fueloil demand, since it would "have a dangerous effect on the ability of our industry to meet the demands of war conditions."

"The coal and railroad industries also are concerned over the effect such a move could have on their operations, and rightfully so," Mr. Hilts continues. "In case of war—could natural gas fuel our navy and merchant marine? could natural gas fuel our air force? could natural gas fuel the trucks, tractors and motor equipment so necessary to our ground forces? could natural gas fuel our farm equipment in order to provide food for both our civilian and military needs? could natural gas take up the slack in the railroad industry created by a falling off in rail shipments of coal and the consequent restriction of operations and deterioration of equipment?

"The job done by the petroleum industry in both world wars is too well known to need further embellishment. The Federal Power Commission and the various state commissions should give full consideration to the overall picture before freely granting applications of the natural gas interests for permission to flood the market with a fuel that is not sufficiently flexible in its use to meet the needs of a national emergency. *In fact, the creation of a national policy delineating the conditions under which permits by the Federal Power Commission may be granted has, we believe, considerable merit.*"

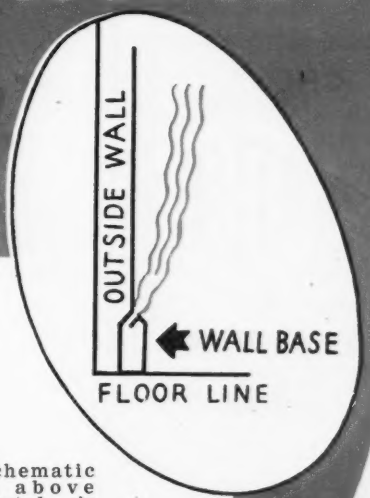
J. G. Sinclair, after twenty-six years' service with Shell Oil Co., has retired as manager of the Indianapolis marketing division. He was succeeded by *C. L. Kluck,* who was division sales manager. Succeeding *Mr. Kluck* was *C. A. Jordan,* succeeded as sales manager of the Cleveland marketing division by *N. H. Miles,* former sales manager of the Detroit division. *J. H. Hopkins* succeeded Mr. Miles.

Brandes WALL BASE Heat

AVAILABLE NOW. An entirely new, tested and proven concept in warm air heating. Brandes all metal base applies heat to the source of cold at the base of the outside walls, blanketing them with a layer of heat. This arrangement uses absolutely no room space, as it takes the place of regular wooden baseboard.

Here is a product that will bring you new customers, and high profits. Get the jump on competition with a product that sells itself with down to earth, common sense sales appeal that *customers* can see.

PRODUCES NEW PROFITS

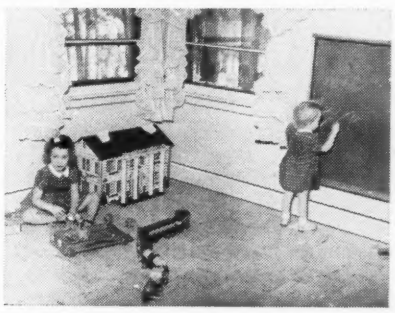


The schematic drawing above shows heated air leaving wall base and being directed away from wall. Yet it remains adjacent to wall for thorough coverage.

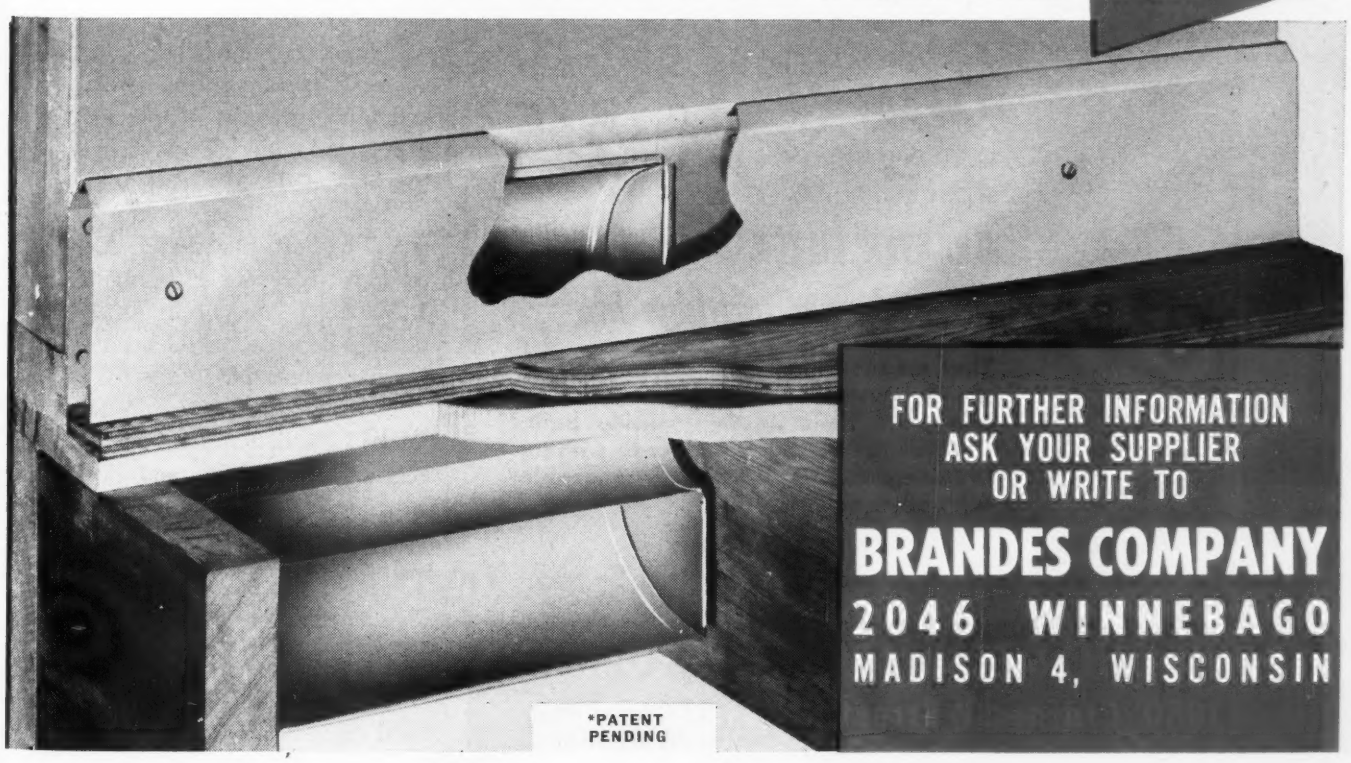
GET THE FACTS TODAY

NO MORE . . .

Cold Floors
Cold Drafts
Unsightly Radiators or Registers
Blasts of Hot and Cold Air
Problems of Furniture Placement
Streaking or Dirtying of Walls



Distributors and Manufacturers Representatives inquiries invited.



*PATENT PENDING

FOR FURTHER INFORMATION
ASK YOUR SUPPLIER
OR WRITE TO

BRANDES COMPANY
2046 WINNEBAGO
MADISON 4, WISCONSIN

ASHVE Annual Meeting And Exposition in Dallas

THE AMERICAN SOCIETY of Heating and Ventilating Engineers will hold its 56th annual meeting in Dallas, Texas, January 22-26. An attendance of about 2000 is expected. Subjects to be covered at the five technical sessions include the use of night air for cooling, heat pump performance, panel heating and cooling, condensation on walls, effective temperature studies and baseboard radiation performance. Headquarters will be the Hotel Adolphus and the Baker Hotel.

The Southwest Air Conditioning Exposition, which will be held simultaneously with the ASHVE meeting, will be housed in the Hall of Agriculture and the Poultry Building at Fair Park. All available space in the two buildings has already been allotted to 200 manufacturers of heating, air conditioning and ventilating equipment.

Meetings of the ASHVE Council and the Committee on Research will be held on January 22, and the first technical session will be opened on the following day by the president of the society, Alfred E. Stacey, Jr., director of application engineering, Carrier Corp., Syracuse, N. Y. During the meeting, reports will be made on the research conducted at the society's laboratory in Cleveland and at cooperating universities.

Dr. Umphrey Lee, president of Southern Methodist University, will speak at the annual banquet, Wednesday evening, Jan. 25. K. C. Richmond, editor of *Coal Heat,* will address a luncheon meeting, Tuesday.

The North Texas Chapter of the society will be host for the meeting. C. Rollins Gardner is general chairman of the committee on arrangements, while G. A. Linskie, chapter president, is acting as vice chairman. On Wednesday afternoon at 2:00 o'clock a report will be given on panel heating research covering experimental techniques and results of heat flow within a concrete panel and heat flow analysis for buried pipes.

Among the technical papers to be delivered are the following:

"Night Air Cooling," by F. E. Giesecke, past president of the society and former director of the engineering experiment station, Texas A. & M., College Station, Tex.

"Evaluating Heat Pump Performance," by F. R. Ellenberger, A. B. Hubbard, W. R. Foote, F. Burggraf and J. J. Martin, Jr., section heads, air conditioning department, General Electric Co., Bloomfield, N. J.

"Condensation on Prefabricated Walls," by E. R. Queer, professor of engineering research, and E. R. McLaughlin, associate professor of engineering research, Engineering Experiment Station, The Pennsylvania State College, State College, Pa.

"Solar Heating of Houses by Vertical South Wall Storage Panels," by A. G. H. Dietz, associate professor of structural engineering, department of build-

CHECK YOUR EDCO NEEDS HERE

- FILTERS
- NOZZLES
- VALVES
- STABILIZERS
- STRAINERS
- ADAPTORS
- INSPECTION MIRRORS
- SERVICEMAN'S NOZZLE KITS

Complete information yours for the asking.

"Sure I use EDCO FILTERS..."

Why wouldn't I—they save my time in servicing and they do a better job for the customer."

GREATER FILTER AREA means longer cartridge life

That means fewer call backs, therefore greater customer satisfaction. EDCO oil filters are light weight, sturdily built. Cartridges can be replaced without breaking the oil line. Interchangeable with other makes.

Stock up today or write for literature

EDDINGTON METAL SPECIALTY COMPANY
1050 Czarnecki Street, Eddington, Pa.

For greatest satisfaction
for easier, faster installation work

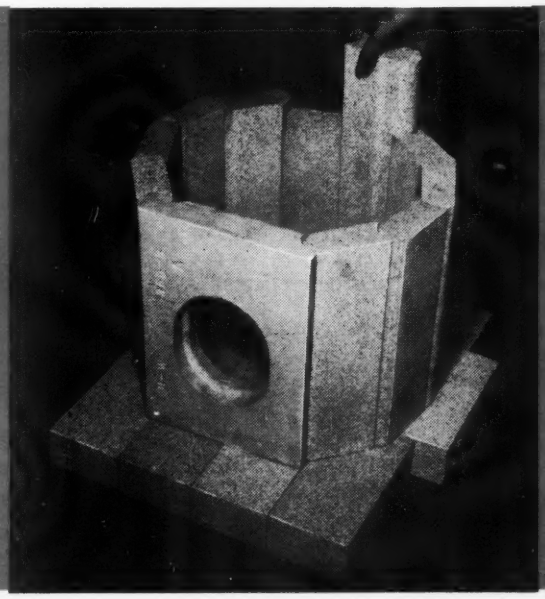
Use the **NEW** HARBISON-WALKER

LOTHERM

combustion chamber for Domestic Oil Burners

EASY TO INSTALL!

REDUCES NOISE, SMOKE ODOR, SOOT!



FASTER HEATING!

SAVES FUEL!

FITS ANY FURNACE!

Your customers will like this new lightweight refractory combustion chamber, for it means faster heating, fuel savings, and the elimination of noise, smoke, odor, and soot. You will like it, too, for it is low in cost and remarkably easy to install.

Harbison-Walker LOTHERM COMBUSTION CHAMBERS are available in heights of 13¼" and 16". A set comprises a frontal piece and standard side pieces, which fit neatly together to the required diameter. LOTHERM COMBUSTION CHAMBERS are manufactured by a new process designed to provide a lightweight chamber at the most reasonable cost. This refractory is strong and light in weight, and can be readily cut with a hack saw.

Complete details will be furnished on request.

HARBISON-WALKER REFRACTORIES COMPANY

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WORLD'S LARGEST PRODUCER OF REFRACTORIES

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USE THIS COUPON to get further information on Harbison-Walker LOTHERM.

HARBISON-WALKER REFRACTORIES CO.
Pittsburgh 22, Penna.
Please send me additional information on LOTHERM

Name_____

Company_____

Address_____

fueloil & oil heat

ing engineering construction, and Edward Czapek, research associate, department of architecture, Massachusetts Institute of Technology, Cambridge, Mass.

"Baseboard Radiation Performance in Occupied Dwellings," by G. S. MacLeod, test engineer, and C. E. Eves, former test engineer, Sears, Roebuck and Co., Chicago.

"Effect of Panel Location on Skin and Clothing Surface Temperature," by L. P. Herrington, director of research, and R. J. Lorenzi, research engineer, John B. Pierce Foundation, Laboratory of Hygiene, New Haven, Conn.

"Resistance Gradients through Viscous Coated Air Filters," by Frank B. Rowley, director, engineering experiment station, and Richard C. Jordan, professor of mechanical engineering, University of Minnesota, Minneapolis.

"Fitting Losses for Extended Plenum Forced-Air Systems," by H. H. Korst, associate professor of mechanical engineering, N. A. Buckley, special research assistant in mechanical engineering, S. Konzo, professor of mechanical engineering and R. W. Roose, special research associate in mechanical engineering, University of Illinois.

The
BEST NOZZLE
We Have Ever Made

The improved Delavan Type A Hollow Cone and Type B Full Cone Nozzles are the finest we have ever offered to the oil burner industry. Continuous research and constantly improved testing facilities have made possible Delavan nozzles that are unsurpassed for accuracy of flow rate, spray angle and spray quality.

NEW OBLONG
INSPECTION MIRROR

A new inspection mirror especially designed for use in small boilers and furnaces with a 2-inch inspection opening. Mirror is 1-15/16" x 3⅞"; has reflecting surfaces both sides. 20-inch handle comes in 3 sections.

Mirror, complete in heavy cloth bag, only $2.95

DELAVAN
MANUFACTURING CO.
3009 SIXTH AVE., DES MOINES 13, IOWA

MEMBER OHI OIL HEAT INSTITUTE OF AMERICA

◈

B. J. Lattner, vice-president of Century Engineering Corp., Cedar Rapids, Ia., has succeeded M. D. McWilliams as director of heating equipment sales, effective January 2. Mr. McWilliams is retiring after more than 20 years with Century. B. J. Lattner is the son of E. J. Lattner, president of Century, and the grandson of J. A. Lattner, Chairman of the Board. He has been active in the company for many years.

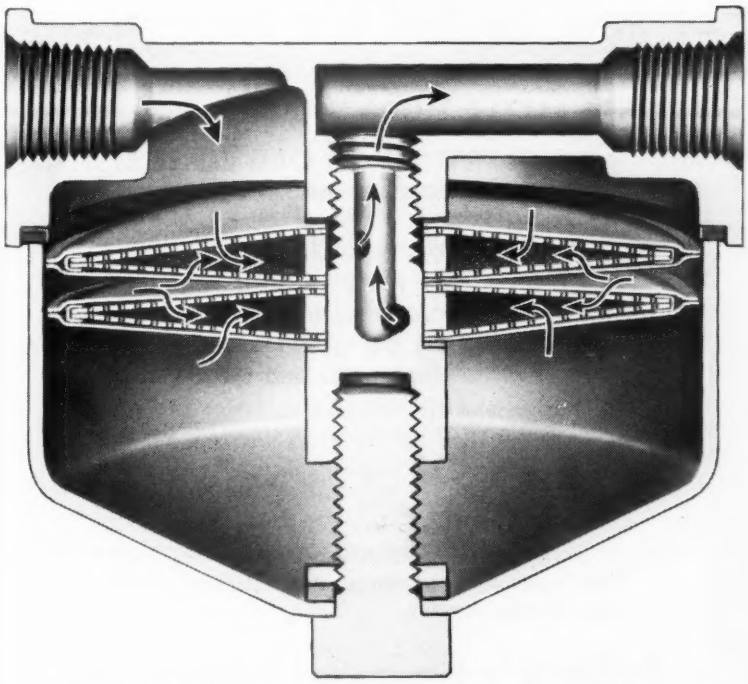
Julius P. Heil, founder and chairman of the board, Heil Co., Milwaukee, Wis., died on November 30 at the age of 73 of a heart attack, suffered while pheasant hunting in southern Wisconsin. Mr. Heil, a typical product of American free enterprise economy, grew up on a farm, matured as a machinist and pioneered in the welding process. In 1901, with savings of $550 and three employees, he founded his own company, whose early products included welded truck bodies, storage and transport tanks. In 1924 the company began the manufacture of oilfired home heating units and water systems, while later diversification expanded the company's operations to include bulldozers and scrapers, mobile farm crop dehydrators and bottle washers. Mr. Heil was elected Governor of Wisconsin in 1939, at which time his son, Joseph F. Heil, became executive vice president of the company. Seven years later Mr. Heil became chairman of the board and his son was made president.

Arnold B. Smith, president, Sylvestre Oil Co., Mt. Vernon, N. Y., died December 24 after an emergency operation at St. Agnes Hospital, White Plains, N. Y. Mr. Smith, who was 42, had been with Sylvestre, Esso Standard affiliate, for sixteen years and prior to that had been with Gilbert & Barker Mfg. Co. at Springfield, Mass.

A new departure in the principle of fuel oil filtering . . . SPARKLER

FUEL OIL FILTER OB-2 OB-4 OB-8

Exterior view showing filter in actual size.



Cross section of Model OB-2 showing interior construction of filter discs. Note the path that oil must follow — through the discs and into the outlet end of filter.

A compact, low cost, filter built for big capacity, heavy duty service, the result of Sparkler's new concepts of design and engineering in the filtration field.

The new Sparkler Fuel Oil Filter uses surface-type filtration in which screen discs covered with a synthetic non-woven rayon material constitute the filter element. This not only provides a much larger effective filtering area within a small space, but serves to remove minute particles down to .001 - .002 from the oil. In addition, because the rayon cloth is a special synthetic product fabricated so that fibers cannot come loose, all danger of the nozzle screen being plugged by fibers is eliminated. This special cloth has still another function, in that it separates water from the oil and permits only clean, pure oil to reach the burner. The lower chamber of the filter forms a large capacity trap for water and heavy particles.

Flow Rate More Than Ample

Flow resistance of the rayon cloth is so very low that the volume of filtered oil delivered is surprisingly high for the filter area. Model OB-2 filter has a flow capacity that easily handles the oil required by the average home burner heating a 6 to 8 room house and under normal conditions will operate without a change of filter discs for a full season. Excessively dirty oil from old tanks in bad condition may require a more frequent change of the filter discs, or in extreme cases the use of the OB-4 or OB-8 Models.

Filter Element Easy to Handle

The filter discs are packaged two to a box 1" x 3¾" square pocket size. The same discs are used on all three models, two discs on OB-2, four discs on OB-4, and eight discs on OB-8. The service man need carry only a few boxes of discs to service any size filter.

No By-Passing in the Sparkler Model OB-2

No by-passing is possible in the Sparkler filter. A positive seal is formed so that all oil that reaches the burner is filtered. If the Sparkler filter element accumulates residue to effectively retard the flow, the pump will give warning that a change is necessary by becoming noisy in operation, but for a period of 24 to 48 hours after this warning occurs the flow will still be sufficient for operating the burner. This no-by-passing feature stops dirty oil trouble at the filter instead of the nozzle. A special user instruction sheet containing this information is supplied with each filter and has space for the service man's phone number.

How Model OB-2 Maintains Maximum Burner Efficiency:

By assuring clean oil, free from sediment, sludge and water, Model OB-2 assures a clean, free nozzle. As a result, the nozzle sprays fuel in the correct pattern, and oil is utilized properly. Every drop of oil is completely ignited without sputtering or side spray so that combustion with the chamber is steady and even — producing maximum heat.

Sparkler OB-2 filters are well made. The housing is cast aluminum alloy, and all steel parts are rustproofed to prevent corrosion. The inlet and outlet are ⅜ I.P.S. Every Sparkler fuel oil filter bears the Underwriters' label, "Approved by Underwriters' Laboratories."

SPARKLER MANUFACTURING CO., Mundelein, Ill., *Member, Oil Heat Institute of America*

Room For Rural Expansion Found In Wisconsin Survey

WISCONSIN FARMERS use a lot of fuel-oil during their long winters, but the market could easily be doubled or trebled. That is the clearest deduction to be made from the fuel survey conducted by the State Crop Reporting Service.

The Crop Reporting Service queried over 1,000 farmers all over the state to learn the fuel preferences of Wisconsin farmers. The "average" Badger farmer, according to this survey, would use 18 cords of wood, 5 tons of coal, and 525 gallons of fueloil in the course of a year. In other words, approximately one-third of the fuel used in rural Wisconsin is fueloil.

Those farmers who rely solely on fueloil reported an average usage of 1,084 gallons during the 1948-1949 winter. The state's agricultural statisticians point out that Wisconsin is one of the nation's heaviest consumers of fuel, since their cold weather often begins in late September or early October, and sometimes continues into April and May. Further, few of the farm homes have insulation of any kind, and a good share of them are too large and rambling to be efficiently heated.

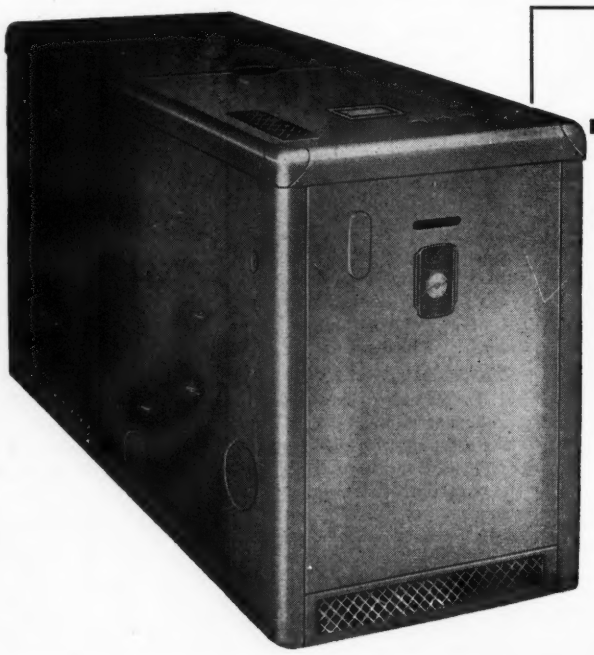
The best market for fueloil in the state is the Southeast district—and that's easy to understand, since that sector includes a number of metropolitan distribution centers and good transportation facilities. On the other hand, the Northeast section uses very little fueloil—about 252 gallons per farm, compared to 776 gallons in the Southeast section. But transportation is poor in the Northeast area and much of the territory is heavily wooded, and as a result, this section uses more wood per farm than any other region.

What does all this mean to fueloil dealers in general? It suggests that there's plenty of room for expansion in farm areas, particularly in regions which may hitherto have looked unpromising. A concentrated advertising and selling program in the more isolated rural regions should uncover a source of sales that has hardly been tapped. A dealer can make such an area highly profitable in spite of higher delivery costs by carefully mapping out the area and assuring himself of a minimum number of customers before he begins operations.

The conservation angle should be stressed in the wooded rural regions. Those woods won't last forever, as many an American farmer already knows, and they're far too valuable both as a soil retainer and income property to be thrown into the stove winter after winter. The fueloil dealer who preaches the conservation message is not only building up his own business—he's doing a big favor to the land owner and the nation. That's good business for everybody!

So there's plenty of new opportunity

The Bethlehem DYNATHERM is within reach of every home owner regardless of how modest the budget!



COSTS LITTLE MORE THAN CONVERTING AN OLD BOILER!

The Bethlehem DYNATHERM comes completely equipped with everything, ready for installation except the piping. It's as simple, automatic and self-contained as an electric refrigerator. Then too, it offers your customers more for their money in fuel economy!

Back of every Bethlehem DYNATHERM is 119 years of knowledge, engineering, experience and responsibility.

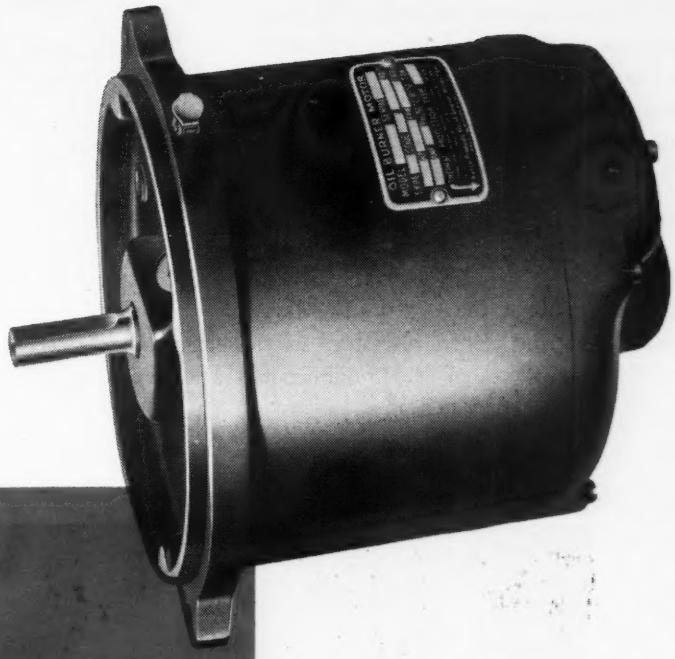
A few exclusive Bethlehem Dynatherm territory Franchises are still available Wire or write immediately for full information.

• FREE literature and newspaper mats available to all Dynatherm dealers.

BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

OIL BURNER MOTORS

Delco split-phase, flange-mounted motors, specifically designed for oil burner application, conform to NEMA and other established standards of efficiency, safety and performance. Thermotron-protected against damage from stalling, overload and faulty power supply. Available in 1/6- to 1/4-H.P., 50- and 60-cycle, constant speed. Noted for their quiet operation and long life.



DELCO MOTORS

for better heating... better service

BLOWER MOTORS

Delco blower motors are specifically designed for belt-driven blowers and fans used in heating, air conditioning and filtering systems. Available in split-phase and capacitor-start types, 1/6- to 3/4-H.P. ratings, single- and two-speed design. These motors have resilient mountings, sleeve bearings and Thermotron protection. They conform to NEMA and other established standards of efficiency, safety, long life and quiet operation.

DELCO MOTORS

DELCO PRODUCTS

Division of General Motors Corporation, Dayton, Ohio

NOTE TO MANUFACTURERS:
There are Delco offices located in Chicago, Detroit, Cleveland, Hartford, Conn., Philadelphia and Cincinnati.

SEE YOUR LOCAL AUTHORIZED DEALER

waiting in the rural regions of Wisconsin and of America. Some well-directed advertising, a bit of sincere salesmanship, and faithful service can add new areas to the cash register's territory.

◈

Survey Indicates Wide Farm Use Of Oilheating

SURVEYS made a year ago by five farm papers covering eight midwestern states indicate a 1949 sale of 54,015 oilburners sold for central heating, against 52,799 for coal, and 51,093 oilfired spaceheaters against 30,942 for coal and wood. The surveys cover Illinois, Indiana, Wisconsin, Minnesota, Iowa, Nebraska and the Dakotas. There was an indicated sale of 23,399 stokers and 10,014 gas-fired installations. An additional survey indicated 1,857 oilburner installations on Colorado farms and ranches during the last year.

		CENTRAL HEATING				SPACE HEATERS		
	No. Farms	*Coal*	*Oil*	*Gas*	*Stoker*	*Coal-Wood*	*Oil*	*Electricity*
Ind.	175,970	6.1%	3.8%	0.6%	3.5%	2.6%	6.4%	0.3%
Ill.	204,239	6.1	3.8	0.6	3.5	2.6	6.4	0.3
Wis.	177,745	6.1	5.3	..	0.9	2.2	3.1	..
Minn.	189,000	4.4	4.9	1.0	0.5	4.4	1.5	1.5
Iowa	208,934	2.4	3.7	..	1.6	2.0	3.3	0.4
Neb.	111,756	1.9	3.5	3.5	0.8	1.2	5.0	0.8
Daks.	138,000	2.4	6.7	1.4	2.4	2.4	4.3	2.4
Colo.	47,618	3.9	3.9	6.8	2.4	5.7	6.0	0.6

Indicated purchases of central heating equipment and space heaters by states are shown in the table, according to surveys made by *Prairie Farmer, Wisconsin Farmer, The Farmer, Wallace's Farmer, Nebraska Farmer* and *Colorado Rancher & Farmer.*

◈

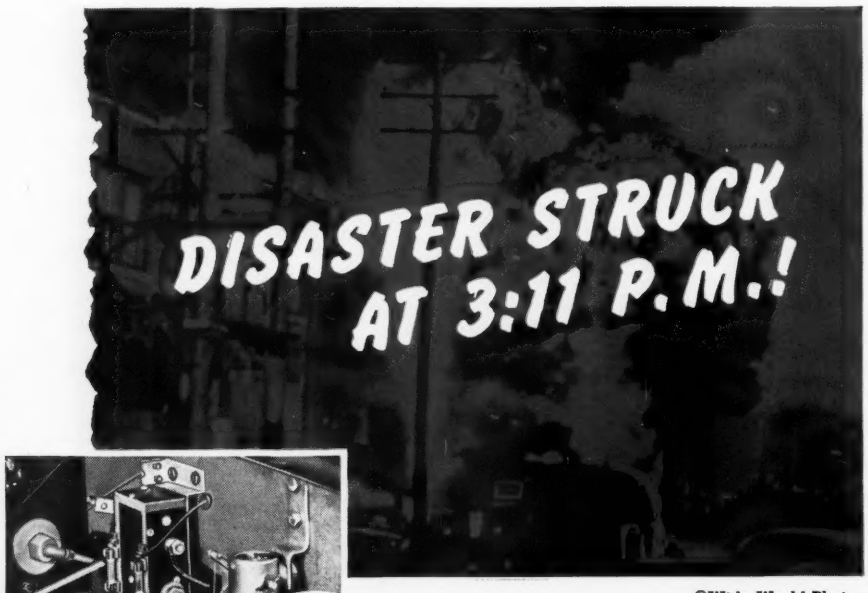
Use Visual Aids To Teach Oilburner Selling

USE OF VISUAL aids is proving a boon in the instruction of oil heat specialty selling at Walter Hervey Junior College, New York City.

Movies, wire and tape recordings plus large colored charts are being used extensively to drive home points on "how to sell oil heat equipment." The seminar, which is jointly sponsored by Walter Hervey Junior College, and the Oil Heat Institute, deals with sales factors, public speaking, sales motivations and technical knowledge.

The seminar is conducted in three phases with an instructor assigned to each phase. Classroom sessions and demonstrations are employed to instruct sales techniques and public speaking while technical information is gained through workshop sessions in the heating laboratories of the YMCA Trade & Technical School.

Carl Watres, Metropolitan area sales manager for the Timken-Detroit Axle Company, is instructing the sales technique phase; Dean Frank Thomas, Evening Division of Walter Hervey Junior College, is instructing public speaking and motivation; Charles Broder, college heat engineering instructor, is handling the technical information phase.



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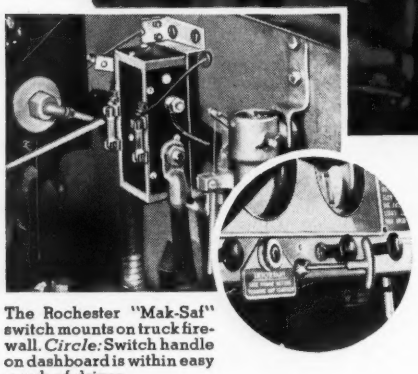


The Rochester "Mak-Saf" switch mounts on truck firewall. *Circle:* Switch handle on dashboard is within easy reach of driver.

A fire that wouldn't have happened with a "Mak-Saf" truck switch on the job

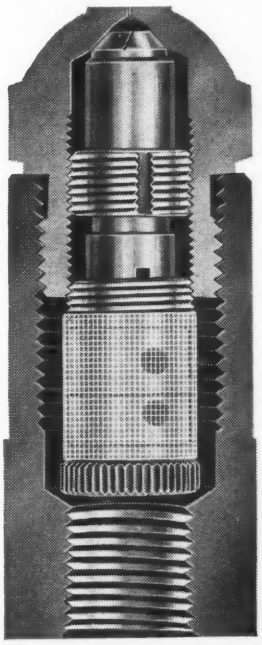
"Catching fire as it was delivering oil, a tandem tanker burst into flame, destroying two homes, damaging three buildings and causing heavy losses." And, this could happen to your trucks . . . but needn't. At small cost you can install a Rochester "Mak-Saf" (pronounced make-safe) switch on your tankers to positively control and minimize the short circuit hazard.

By simply pulling out the "Mak-Saf" switch handle located on the dashboard, the driver can break the electrical circuit in emergencies and for storage. Besides safeguarding costly equipment against fire, it prevents the battery from running down due to any leakage of electrical current.

Motor repairs also can be made safely and quickly without the necessity of removing batteries as a precaution against shock and flash fires. The "Mak-Saf" switch also gives the driver manual control of the generator. Should the voltage regulator go out of adjustment, he can prevent a burn-out by partially pulling out the switch handle, disconnecting the generator field.

"Mak-Saf" switches are foolproof, sturdily made, easy to install and require no maintenance. Send for Bulletin and prices.

ROCHESTER MANUFACTURING COMPANY, INC.
8 Rockwood Street **Rochester 10, New York**
MANUFACTURERS OF LIQUID LEVEL, TEMPERATURE AND PRESSURE GAUGES



Insure perfect combustion with the NEW Steinen nozzle!

STEINEN

5 Big Features of the STEINEN NOZZLE

1. Micro atomized spray for intensified heat.
2. Mirror finish causes heat deflection, and prevents carbon collection.
3. Vacuum shutoff prevents backlash.
4. Nozzles are interchangeable for different types of burners.
5. Each nozzle individually tested.

Steinen nozzles are available through your local jobber.

Manufacturers of standard and special items for the oilburner industry.

Your inquiry invited.

Established 1907

WILLIAM STEINEN MFG. CO.

43 Bruen Street Newark 5, N. J.

This seal is your assurance STEINEN *of guaranteed precision products*

D. C. OHI Calculates Oil Savings Over Gas

SAVINGS IN FUEL cost averaging about $50 a year for househeating has been demonstrated for oil over gas by the Oil Heat Institute of Greater Washington (D. C.), assuming that each fuel is used at the same efficiency. The current price of 140,000 Btu heating oil in Washington is 11.8 cents per gallon. Gas is selling for $1 for the first five therms, 13.4 cents per therm for the next 10, 12.1 cents per therm for the next 15, and 10.9 cents per therm for the next 570 therms. It requires 1554 therms of gas to equal 1110 gallons of No. 2 heating oil.

Month	Normal Percentage of Heat Requirements	Gallons of Oil	Cost of Oil @ 11.8¢ Per Gal.	Therms of Gas	Cost of Gas
Sept.	.9	10.0	$1.18	14.0	$2.21
Oct.	5.6	62.2	7.35	87.0	10.37
Nov.	12.1	134.3	15.90	188.0	21.38
Dec.	19.2	213.1	25.15	298.4	33.42
Jan.	20.5	227.6	26.80	318.6	35.62
Feb.	18.3	203.1	24.00	284.4	31.89
Mar.	13.7	152.1	18.00	212.9	24.14
Apr.	7.5	83.2	9.82	116.5	13.59
May	2.2	24.4	2.88	34.2	4.62
Total	100.0%	1110.0	$131.08	1554.0	$177.24
D.C. Sales Tax			2.62		3.54
			$133.70		$180.78

$180.78 cost of gas for heating season
133.70 cost of 1110 gals. of oil

$ 47.08 saving using oil for heating season

The association's calculation of comparative costs is shown in the table.

◈

Complete Joint Tests on Oil From Coal Process

COMPLETION of successful tests, carried out with the Pittsburgh Consolidation Coal Co. at the pilot plant at Library, Pa., has been announced by the Standard Oil Development Co., New York 20, N. Y. The work has been undertaken to determine the application of the fluidized solids technique, developed for catalytic cracking of petroleum, to the gasification of both coal and coke.

Operation of the pilot plant started October 10, 1948 and has resulted in valuable engineering and operating information. The development company explains that the pilot plant has served its purpose and with the return of a more nearly normal increase in oil demand and greatly increased world petroleum supplies, it appears that the need for converting coal into oil is not pressing, thus allowing time for further basic small scale research.

George H. Love, president, Pittsburgh Consolidation Coal Co., in a statement issued on December 29, also emphasized the successful experiments conducted at the Library pilot plant and revealed it would be closed down on January 6. He indicated also that the company was abandoning its plans to build a commercial plant to implement the program,

• BIGGER PROFITS
• LOWER INVENTORY
with the 'One Package'...
KANTLEAK
OIL TANK KIT

Custom Designed
16 SIZES FOR EVERY NEED
Complete
★ SIMPLE TO INSTALL ★ COMPACT ★ LOW COST
A trouble-free installation Kit that will balance your stocks, reduce slow moving parts in your bins and cut sales time to a minimum. Dealers already supplied report no sales resistance... The Kantleak 'one package' Kit meets with instant approval. Filter approved by Underwriters' Laboratories for No. 1, 2 and 3 fuel oil.
— SEE YOUR LOCAL JOBBER OR WRITE DIRECT —
ABC
KANTLEAK PRODUCTS
ANDERSON BRASS CO.
5305 TWELFTH STREET · DETROIT 8, MICHIGAN

Feature for Feature —

YOUR BEST BUY in 1950

REXOIL
OIL HEAT
WITH PATENTED FUEL-HOARDING TURBULATOR

...and at No Extra Cost!

While the industry at large reviews its figures for 1949, why not take stock of your own position. You've made your share of oil burner installations and they've been good ones . . . that is—*they've been good as far as you can control them.* But what about the oil burner itself?

Will it really prove economical?

Will it burn all fuels cleanly and completely as you promised?

Will it stop some cold morning and bring a frantic phone call?

Did you actually make any money installing it?

Yes—it would be a great thing if you could make a clean cut sale in this business. But the oil burner itself can cast a black shadow over your profit sheet for a long time after the installation has been made . . . unless, yes, *unless you install an oil burner of proven dependability.* It's never too late to change if you can do better—and **you can do better with Rexoil.** Write for NEW Catalog and find out why. IT'S FREE!

REIF-REXOIL, Inc., 37 Carroll St., Buffalo 3, N. Y.

For Over a Quarter Century -- A Complete Line of Oil Burners, Furnaces & Boilers

declaring, "To be successful a plant of the type we had planned would have to have cheap coal and complete assurance of a regular coal supply. Under present circumstances the labor relations in the industry are so bad that none of these things are possible." Citing the continuing demands of the United Mine Workers for higher wages and the increases in mining costs, Mr. Love continues, "No sane person would dream of investing great sums of money in a venture which was tied to coal as a raw material when the future cost is so indefinite and the supply of coal so unreliable."

Coal Producer Becomes Industrial Oil Dealer

POCAHONTAS FUEL CO., through its president, O. L. Alexander, has announced its decision to join with Standard Oil Co. of California to build the largest oil terminal in Portland, Me. Work is being started on the first two for the storage of heavy fueloil, a combined capacity of 100,000 to 125,000 barrels, with facilities included in the design to handle the largest tankers.

Said Mr. Alexander, ". . . our customers are so disgusted with interruptions, year after year, in their coal supply because of Mr. Lewis' attitude that we are going into oil where oil is available in order to hold on to our business. It is up to us to be able to offer whichever is cheaper, with the thought that some day oil may go out the window and coal may come back into its own."

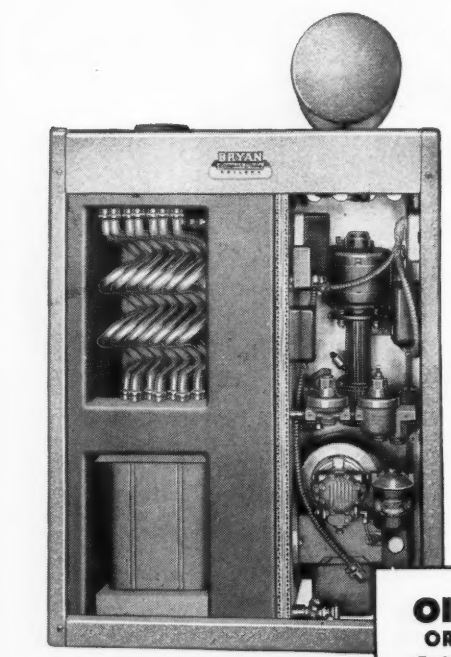
Pocahontas and a subsidiary have extensive bituminous mining operations in Virginia and West Virginia.

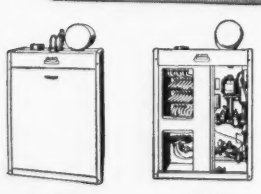
Fred A. Wiker has resigned as secretary and treasurer of the Herco Oil Burner Corp., Lancaster, Pa., and C. R. Herr has been elected to succeed him. Mr. Wiker has been with Herr & Company for 50 years and with the oilburner division for the last 10 years.

Leo F. Brown has been appointed plant manager of the air conditioning equipment plant, General Electric Company's Air Conditioning Dept., Bloomfield, N. J. Another announcement told of the appointment of *Edward D. Kemble* as plant manager of the Department's automatic heating division. Before his present assignment Mr. Brown was with the Houdaille-Hershey Corp., as manager of its Detroit plant. Mr. Kemble previously was plant manager of Clark Eqpt. Co., Battle Creek, Mich.

"And she's not just decorative either. You should see her sharpen pencils"

C. H. Wagner on December 19 became vice-chairman, American Oil Co., New York 17, N. Y. *H. C. Smith,* formerly vice-president, was elected to succeed Mr. Wagner as president. *D. J. Smith* remains chairman of the board of directors.





OIL OR GAS FIRED

Bryan offers a Completely

PACKAGED BOILER

designed for radiant heating of small homes and apartments

- Light in weight.
- High efficiency copper tubes.
- Measuring but 31" wide, 41" high and 18" deep, it delivers 70,000 BTUs. Also 100,000 BTU size available.
- Green hammerloid finish.
- Oil or gas firing optional.
- Easily installed—all wiring, piping and controls assembled at factory—ready for use after connecting to water, mains, electricity and fuel lines.

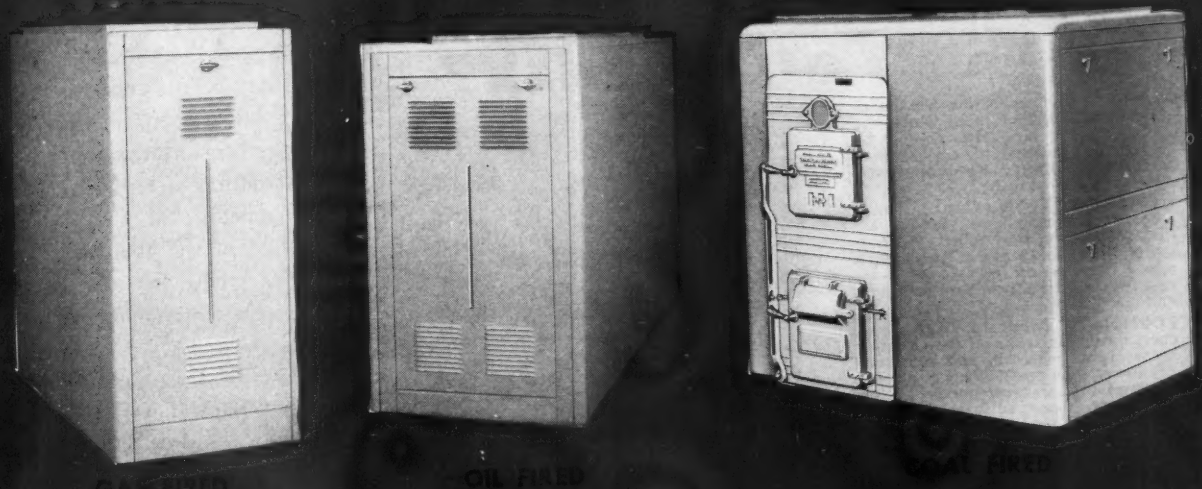
Built to ASME specifications.
Send today for complete information.

BRYAN STEAM CORP. 110 Chili Pike • Peru, Indiana

BRYAN *Copper Tube* **BOILERS**

MAYFLOWER

The Name of Distinction IN WARM AIR HEATING



A complete line, competitively priced, for GAS, OIL and COAL

MAYFLOWER AIR-CONDITIONERS, INC. • St. Paul 6, Minn.

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Groups' activities to reach the editor by the 18th.

Wisconsin Dealers Announce Committees; Hold Xmas Party

THE FIRST MEETING conducted by the new officers elected by the Wisconsin Oil-Heat Association, Inc., Milwaukee 2, Wis., was held on December 29. Following the business meeting a social period took place, for which members were requested to contribute a Christmas gift.

The business session, which followed the regular monthly dinner, heard progress reports from the advertising, advertising fund, membership and home show committees. Then followed a discussion of the comparative costs of fuels and plans to meet natural gas competition.

President Lawrence O. Woehrer announced the following as chairmen of the indicated committees: Advertising, John Kopmeier; advertising fund, Walter J. Schroeder; finance, John Weiler; golf outing, Charles Robel; grievance, Paul Zinns; home show, Harry Gringolf; legislative, Alfred Hegeman; membership, Clarence Gorder; and historian, Alfred Hegeman. For the annual dinner rally, scheduled for February 10, these chairmen have been named: Arrangements and entertainment, J. H. Shellenberger; reception, William Hatch; distinguished guests, Carter Wells, tickets and reservations, John Weiler. Each chairman is assisted by three, four or six members.

SWIRLING HEAT

THE BETTER OIL BURNER!

PRINCIPLE. Combustion head, with *vertical* nozzle, is located *inside* the firebox. Pressure air, guided by "Swirlator", mixes with oil vapor to produce highly turbulated mixture and a swirling ball of flame.

CONSTRUCTION. Conventional motor - fan - pump unit supplies air through square draft tube. Oil line and ignition bus bars run inside draft tube. Combustion head cover is instantly removable for access to nozzle and electrodes.

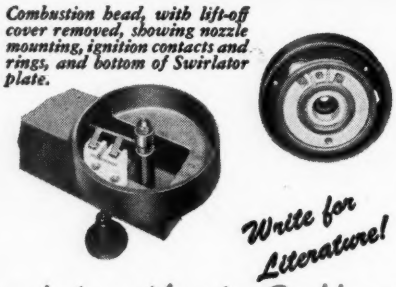
ECONOMY. Laboratory tests and checks on thousands of installations show higher efficiency and substantially lower fuel costs. Performance is achieved through superior combustion and faster, more uniform heat distribution.

FEATURES. No refractory combustion chamber is used, heat being radiated directly by ball of fire. With cooled combustion head, and no intense heat throw-back from red-hot chamber at cut-off, *electrode carbonization and nozzle coking are prevented by eliminating the conditions that cause them.*

MARKET. Live customers are waiting for the superior performance that Swirling Heat can deliver! *We are looking for live, experienced dealers who will welcome a line of better burners.* Let's get together!

- NO COMBUSTION CHAMBER REQUIRED
- NO CARBONIZING ON NOZZLE OR IGNITION POINTS
- HIGHER CO_2 — GREATER EFFICIENCY
- INSTALLATION PROBLEMS GREATLY SIMPLIFIED

Combustion head, with lift-off cover removed, showing nozzle mounting, ignition contacts and rings, and bottom of Swirlator plate.



Write for Literature!

Dealers! Here's quality that Sells!

SWIRLING HEAT CORPORATION, 1775 BROADWAY, NEW YORK 19, N. Y.

RESEARCH LABORATORIES: 2818 N. WASHINGTON ELVD., ARLINGTON, VIRGINIA

SINCE 1929

Complete Schedule for Twenty Indoor Comfort Conferences

TWENTY Indoor Comfort Conferences, to be held in the early part of 1950, have been arranged for by the National Warm Air Heating and Air Conditioning. The Conferences, a preliminary list of which appeared on page 72 of the December issue, again will be conducted by Guy A. Voorhees, Association application engineering director. Instructional material will begin with a short review of basic principles of warm air heating and methods of figuring heat loss. Most of the first day's session will be devoted to gravity and forced air heating systems for low-cost homes. The second day of the conference will deal with heat loss problems in larger buildings, together with the design of systems for installation therein.

The schedule of Conferences, with the names of the chairmen, located in the cities where the sessions are being held, except where noted otherwise, follows:

Evansville, Ind., January 9-10, Fred P. Bean, Ohio Valley Hardware & Roofing Co.; Columbus, Ohio, January 16-17, Newt T. Hess, Vorys Bros., Inc.; Milwaukee, Wis. (Tentative), February 2-3, Elmer J. Radner, Auer Steel & Furnace Supply; Minneapolis, Minn., February 6-7, Stuart A. Smith, Waterman-Waterbury Co.; Duluth, Minn., Feb. 9-10, J. P. Nelson, Kelley-How-Thomson Co.; Billings, Montana, February 13-14; A. C. Howland, Kelley-How-Thomson Co.; Denver, Colo., February 17-18, J. H. Singleton, C. A. Crosta, Inc.; Omaha, Neb., February 20-21, Lee C. Norton, A. Y.

Kresky Oil Furnaces SELL EASIER!

Kresky OIL BURNERS
SINCE 1910

"Please Ask Us To Demonstrate THIS FAMOUS KRESKY OIL BURNER"
(NO OBLIGATION)
KRESKY OIL BURNER PATENTED
A MISER WITH OIL
A GIANT FOR HEAT
FAST, CLEAN, TROUBLE-FREE LOW COST LUXURY FOR ALL HOME HEATING NEEDS

Because Only Kresky Dealers Can Give 3-Dimension Demonstrations

To many of your customers, terms as BTU output, thermal efficiency, and other phrases are a jargon that goes over their heads. But everyone understands and appreciates the superiority of the Kresky burner because of the unique Kresky 3-dimension demonstration method which lets your customers *HEAR, SEE* and *FEEL* the advantages of the Kresky patented burner. The result . . . more sales per given number of prospects, faster sales, more profitable sales.

EVERYBODY IS A PROSPECT FOR KRESKY

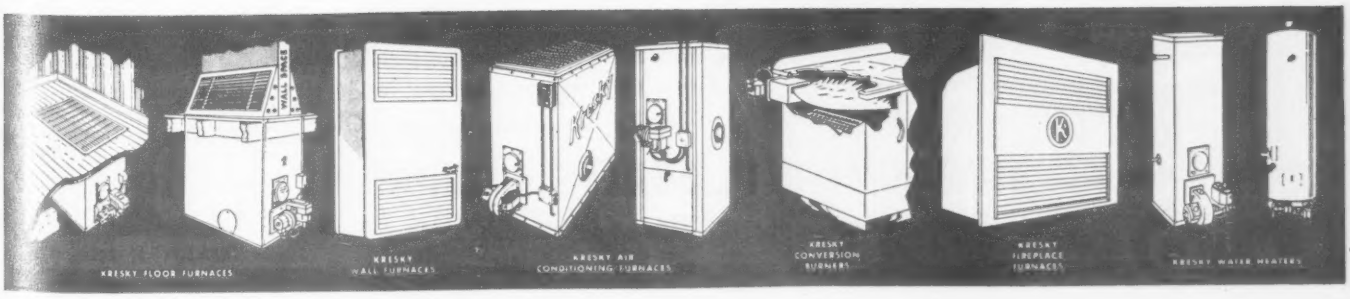
With Kresky, you have a complete line to meet the desires and requirements of *all* your prospects. A letter or postcard will bring you full information on the sales advantages of the *complete* Kresky line—the line that can be sold by demonstration.

Listed by Underwriters' Laboratories, Inc.

If interested in a dealership, write

KRESKY MFG. CO., INC.
100 H STREET
PETALUMA, CALIFORNIA

FOR 40 YEARS THE ORIGINATOR AND LEADER OF BETTER OIL HEATING EQUIPMENT.



McDonald Mfg. Co.; Des Moines, Ia., February 24-25, John C. Rehmann, Keith Furnace Co.; St. Louis, Mo., February 27-28, W. L. Dulle, E. E. Souther Iron Co.; Binghampton, N. Y. March 9-10, C. H. Starr, Northrup Supply Corp.; Newark, N. J., March 13-14, Russell M. Cook, Thatcher Furnace Co., Garwood, N. J.; Philadelphia, Pa., March 16-17, John E. Phillips, Stelwagon Mfg. Co.; Pittsburgh, Pa., March 20-21, J. E. Eckstein, Eckstein Co. and Louis F. Demmler, Demmler Bros Co., co-chairmen.

Atlanta, Ga., April 3-4, Rudy Brown, Rumbold Co.; Birmingham, Ala., April 6-7, George F. Wheelock, Geo. F. Wheelock Co.; Chicago, Ill., April 17-18, George Kalvog, Austin Sheet Metal Wks., Inc.; Fort Wayne, Ind., April 24-25, H. F. Blackburn, Tri-State Htg. Supply, Inc.; Appleton, Wis., April 28-29, J. C. Berger, Metal Service Co.

In addition, a basic three-day conference is to be held at South Bend, Ind., on April 20, 21 and 22, with Richard J. Young, Young Htg. Supply, Inc., acting as chairman.

Registration fee for the two-day conferences is $12.50 per student, $15.00 for the three-day South Bend conference. The fee includes tuition, cost of manuals and worksheets, but does not include hotel reservations, where needed, nor meals. The chairmen of individual conferences should be contacted for detailed information.

Pacific Coast Meeting Will Include Oil Heat Exposition

THE PACIFIC COAST convention meeting of all West Coast Oil Heat Institute members is scheduled to be held the first week in March in Seattle and, for the first time, will include a complete oil heat exposition on March 2, 3 and 4. Oil Heat Institute of Washington, Seattle 1, Wash., has been designated host for this year's convention, and plans for publicizing the event have been formulated to insure that all industry members are notified in Washington, Oregon, Idaho, northern California and southern British Columbia.

Robert G. Elmslie, manager of the OHI of Washington, points out that the exposition has been scheduled sufficiently in advance of the national exposition, being held April 24 to 28 at Philadelphia, so that there will be no conflict in dates. In addition, he adds that few west coast members are able to attend a national exposition because of distance, time and expense involved.

SBI Meeting Told Boiler Sales Exceed Earlier Estimates

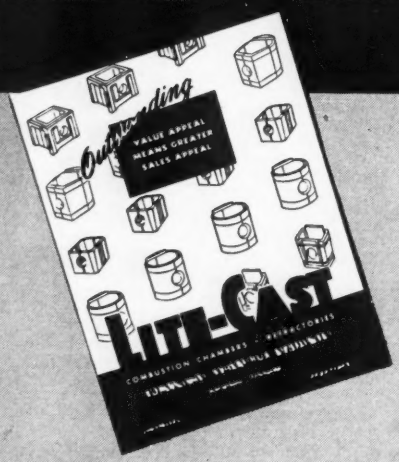
R. A. LOCKE, president, Steel Boiler Institute, Philadelphia, Pa., at the meeting held during November at White Sulphur Springs, W. Va., reported that sales of steel boilers during 1949 have exceeded estimates made earlier in the year. The first quarter of 1949 saw steel boiler shipments fall 22% under 1948, but gains for each period since May 1949 have seen shipments of low pressure heating boilers for three quarters of 1949 3½% less than last year. "In surveying the data now available on anticipated building for 1950," Mr. Locke said, "it appears that our 1950 business will be only 7% less than 1949."

Harold Massey, assistant managing

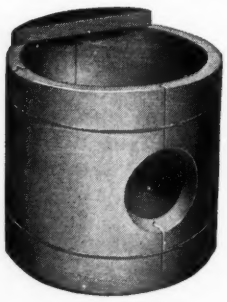
LITE-CAST—COMBUSTION CHAMBERS

Engineered for

Quality • Efficiency • Performance!



Send for our new 12 Page Illustrated Catalog, containing valuable specifications and information on combustion chambers.



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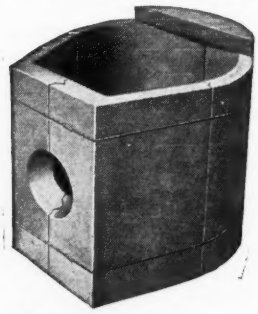
For use in warm air furnaces and round boilers.



PEAR SHAPE
(Pat. #2075433)
Made in 8 sizes to meet all domestic oil burner conditions.

Everything included in wooden box for complete installation.

We Specialize in sizes and shapes for almost every application
Truly "TIME TESTED"—over 15 Years of Top Performance in Domestic Oil Heating.

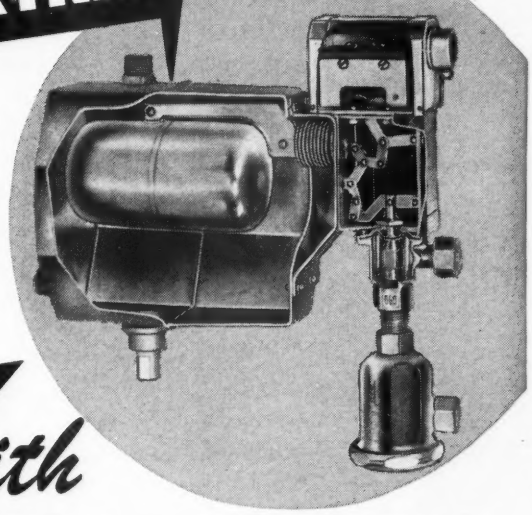
PHILADELPHIA 4 **MONOGRAM PRODUCTS COMPANY** PENNSYLVANIA

Designers & Manufacturers

YOU GET THESE

6 EXTRAS

- Modern Appearance
- Low Cost
- Less Corrosion
- Easy to Install
- Easy to Clean
- Simple to Repair



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MAID-O'-MIST

Boiler Water Level Controls

Yes, six extras that mean a lot to the man who installs these controls. And these extras are in addition to the safer, more dependable, boiler protection.

The new 500 Series of Maid-O'-Mist Boiler Water Level Controls are compact, streamlined and light in weight (only five pounds) . . . because they are built entirely of non-ferrous metals. These controls are highly dependable because of such new features as the "approved" switch used as a circuit breaker in the low water cut-off . . . the rapid snap action of the contacts . . . the generous use of silver . . . the size of the switchgap . . . all making it possible to break large currents without pitting or sticking.

STOP
WATCHING THE WATER LINE

. . . Use Maid-O'-Mist Water Boy Controls for Safer Boiler Protection.

No. 500 WATER BOY SERIES IN FOUR COMBINATIONS

Designed for low pressure steam boilers up to 5000 sq. ft. capacity carrying 25 lbs. maximum steam pressure. Come complete with quick hook-up fittings.

No. 577 Water Boy. A combination Feeder and Low Water Cut-off for automatically fired boilers. Switch rating ¾ h.p. 110v. A.C. and 1½ h.p. 220v. A.C.

No. 567 Water Boy. Feeder only. Low water cut-off can be added later to make it identical to No. 577.

No. 568 Water Boy. A combination Feeder and Low Water Cut-off with addition of a signal light that flashes when water drops to ½" in gauge glass.

No. 587 Boiler Guard. Low Water Cut-off only, giving same cut-off protection as No. 577 but without Water Boy Feeder.

We cannot give you an adequate word picture of the important developments incorporated in these controls. You must see them—try them. Send for catalog No. 500 Now.

MAID-O'-MIST INC.

AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

3221 N. PULASKI RD.
CHICAGO 41, ILLINOIS

Count on COASTAL

...Dependable Supply

...Time-Saving Facilities

...Profit-Building Assistance

OIL COASTAL COMPANY

EXECUTIVE OFFICES
60 Park Place, Newark 2, N. J.

fueloil & oil heat

director, Gas Appliance Manufacturers' Association, reviewed the progress of natural gas along the eastern seaboard and outlined dates when gas might be available in some of the larger cities.

Results of a survey on the marketing pattern of residential heating boilers were given in a report prepared by Robert Gray, business manager, FUELOIL & OIL HEAT. Compiled from questionnaires returned by 176 dealers who bought a total of 4,042 boilers during the first six months of 1949, the survey revealed that 42% were cast-iron, 58% were steel boilers. Of all boilers, 53% were bought direct from manufacturers and 32% from plumbing and heating supply jobbers.

Washington OHI Moves Office, Announces Sales Clinic

SINCE DECEMBER 15 the offices of the Oil-Heat Institute of Greater Washington have been located at a new location, Room 305, Century Building at 412 5th St., N. W., Washington, D. C. The move was made primarily to secure additional space and permit Directors' meetings to be held at association headquarters.

On January 18, the Institute is sponsoring the first of three sessions in a Sales and customers relations clinic, under the direction of Frank A. Patterson. Other sessions will be held on January 25 and February 1. The complete clinic, open to the salesmen and servicemen, is designed to improve the salesman's effectiveness and upgrade the customer relations of each serviceman.

The initial session is to discuss analysis of the salesman and the serviceman, right and wrong selling approaches, four steps in selling and how the serviceman can assist in a sale. The second class will include discussions on buying motives, ten rules that create optimism for oilheating and the sales presentation. Overcoming sales resistance, the close, a dramatization of a serviceman's call and suggestions for improvement are among the subjects on the agenda for the concluding lectures.

All sessions are to last two hours, beginning at 8:00 P.M.

Cincinnati Is Site of ICHAM's Seventeenth Meeting

THE SEVENTEENTH ANNUAL MEETING of the Institute of Cooking and Heating Appliance Manufacturers, Washington, D. C., was held December 5 to 7 at the Netherland Plaza Hotel, Cincinnati, Ohio. About a thousand members and guests attended the meeting, participating in business and technical sessions, a luncheon, cocktail party and banquet and visits to exhibits of equipment, materials and components displayed by seventy-two manufacturers. Walter F. Muhlbach, director of distribution research, Florence Stove Co., was convention chairman.

A. B. Ritzenthaler, Tappan Stove Co., was unanimously re-elected president of the Institute. Serving with him will be: Walter F. Muhlbach, Florence Stove Co., as executive vice-president; F. D. Hart, Tennessee Enamel Mfg. Co., as secretary-treasurer and John A. Drake, Norge Div., F. H. Guthrie, Newark Stove Co. and Cecil M. Dunn, Estate Heatrola Div., as vice presidents in charge of meetings, publications and memberships, respectively.

Activities during the three-day convention included two meetings of the

CERTIFIED Steel Boilers

Scientifically Designed for HIGHEST EFFICIENCY!

PAT. APPLIED FOR

W.B. SERIES: Scotch-Marine Boilers of efficient three (3) pass design. (1) Flame in fire-tube and built-in combustion chamber is completely surrounded by water. Gases then pass through double bank of tubes for both the (2) forward pass and (3) rear pass. Wet base assures maximum heat extraction.

W.B. SERIES possess all proven features of Marine and Industrial Boilers where economy, efficiency, and performance are an absolute necessity. Home-owners report up to 50% fuel savings. Priced and sized for the smaller homes, apartment houses, office buildings, and industrial plants.

Year-round hot water furnished by instantaneous tankless coils. Attractive jacket in two-tone hammertone green.

Sizes from 320 to 2200 sq. ft. steam, 512 to 3520 sq. ft. hot water. Larger sizes to order.

Complete line of CERTIFIED Boilers, Boiler-Burner units, and Furnace-Burner units.

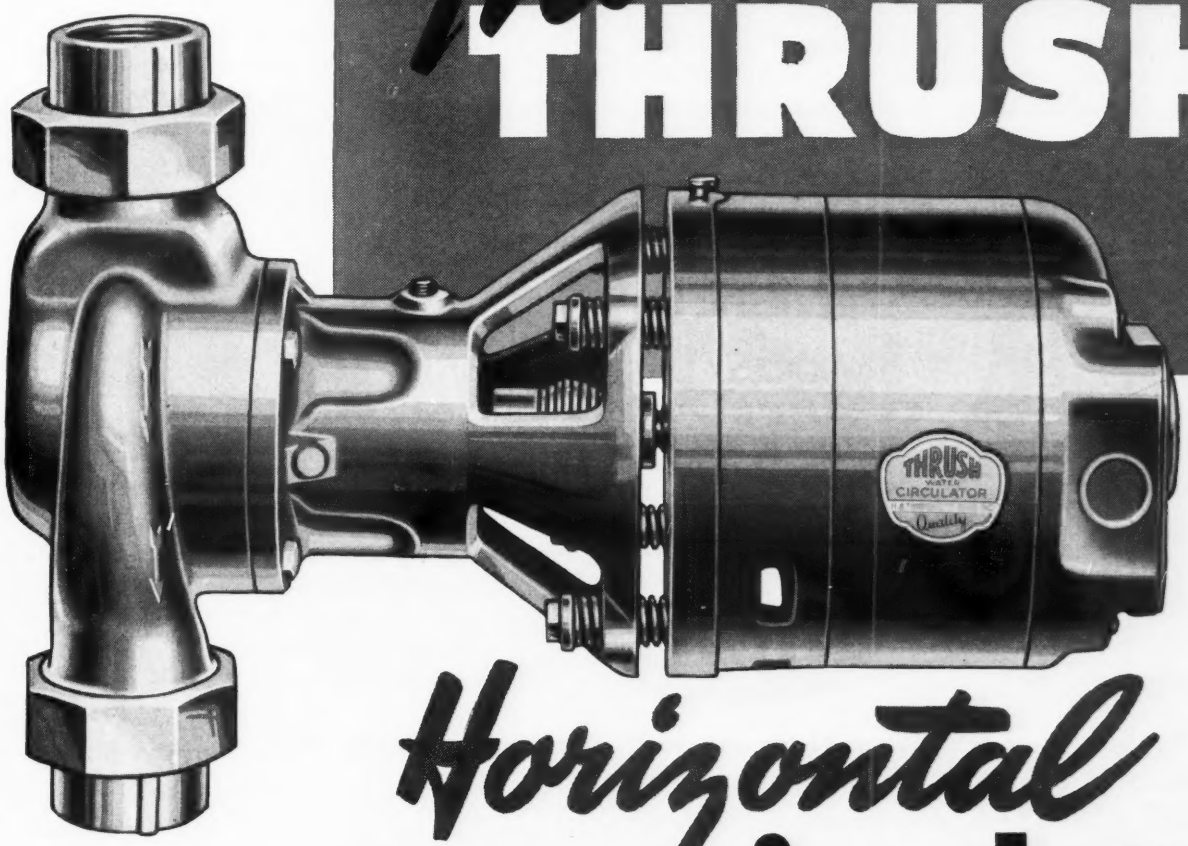
Dealers: Sell CERTIFIED packaged efficiency units and close sales easier!

CERTIFIED BOILER WORKS

35 West 33rd Street **New York, N. Y.**

ANNOUNCING

The New! THRUSH



Horizontal water circulator

ALSO VERTICAL MODELS

THRUSH Horizontal Water Circulator is new! But it's the same fine, efficient circulating pump and incorporates all the time-tested features that have made Thrush Circulators superior through the years. It has sealed-in lubrication and the patented, flexible spring coupling and motor connecting springs which assure permanent alignment between motor and impeller shaft. Has double oil and water seals. The principal difference is the motor suitable for horizontal operation. Vertical types are still available. You may have either type you prefer.

★ **A life-time pump . . . grooved bearing circulates oil over moving surfaces constantly.**

★ **Ground and polished stainless steel impeller shaft with perfectly balanced brass impeller.**

★ **Positive circulation with quiet, smooth operation, free from service troubles.**

ASK YOUR WHOLESALER
OR WRITE DEPT. C-1 FOR MORE INFORMATION

H.A. THRUSH & COMPANY

PERU · INDIANA

FORCED CIRCULATING HOT WATER HEAT

Institute's Oil Division Technical Section, presided over by R. C. Laramy, Norge Heat Div., Borg-Warner Corp. and John W. Baillie, president, American Gas Machine Co., who also was chairman for the meeting of the Oil Division Executive Committee.

Among the subjects discussed at these sessions were reports from committees on burnability of fueloils, standardization of constant level valve flow rates, proposed revision of temperature zone map and the need and probable cost of an installation and service manual. The business outlook was a major subject discussed at the second session, accompanied by papers on the probable portion of space heater sales during the next five years that will use vaporizing type heaters, a report of the chairman of the technical section and a report on the status of the Division's special fund.

A meeting of the Sleeve-type Burner Division, conducted by C. O. Slaby, sales manager, Heater Div., Florence Stove Co., reviewed the postwar sales trends and pondered the effects of natural gas pipe lines on the kerosene stove business.

ELIMINATE COSTLY SERVICE CALLS!

with

Fulflo FILTERS
REG. U.S. PAT. OFF.

One reason there are so many more FULFLO Filters than any other on the OIL BURNERS of America is because leading dealers everywhere have learned by experience that wherever they install FULFLO they eliminate costly service calls due to troubles arising from impure oil.

Make FULFLO a member of your service department . . . on the job day and night to ensure your customers efficient and uninterrupted home heating.

Fulflo Filter CARTRIDGES
Engineered for Oil-Burner Service. Precision depth filtration. Every drop of oil finely filtered again and again.

MEET US AT BOOTH 218 AT THE DALLAS EXPOSITION

COMMERCIAL FILTERS CORPORATION
BOSTON 27, MASSACHUSETTS

WRITE OR WIRE US IF YOUR JOBBER CANNOT SUPPLY YOU WITH FULFLO FILTERS AND CARTRIDGES FOR BETTER HOME HEATING.

Form Industrial Burner Contractors Association

ORGANIZED by the installers of industrial oilburners in the City of New York, the Industrial Oil Burner Contractors' Association, Inc., is headed by William E. Green, president, Green Eng. Co. David H. Bass, Universal Air Conditioning Corp. is vice-president; Andrew C. Liebland, Enterprise Eng. Co., is secretary and Charles W. Bender, Bender Eng. Co., treasurer. Hans Lieblich, H. Lieblich & Co., along with the officers, is a member of the board of directors.

The Association's office is located at 306 East 39th St., New York City and its aims are described as fostering the trade and promoting the welfare of its members; promoting development of the industrial oilburner industry, improvement and standardization of materials and workmanship. Also, activities of the group will be directed at encouraging and maintaining beneficial relations between members and employees and to cooperate with other associations.

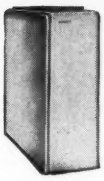
I-B-R Instruction Sheet On Heating System Care

TO ENABLE owners to operate them efficiently, Institute of Boiler and Radiator Manufacturers, New York, N. Y., has issued "Instructions for Operation and Care of Hot Water and Steam Heating Systems."

Printed on both sides of a 17" x 22" sheet, the Instructions offer detailed, simply-worded directions for proper operation and maintenance, with frequent references to the importance of service by competent heating contractors or dealers. Institute members will ship copies with their boilers. At the bottom of each sheet, a blank space is provided for the name of the contractor who makes the installation. Quantities of the sheets are available at $4.00 per 100 copies.

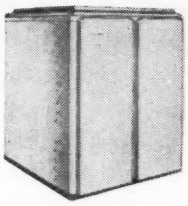
Heating Wholesalers Name Slate of Officers for 1950

AT ITS ANNUAL MEETING, held December 12 and 13, the National Heating Wholesalers' Association, Cleveland 14, Ohio, elected trustees and officers to serve for the ensuing year. Charles Bird, Cincinnati Supply Co., was named



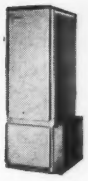
Series L

Steel Air Conditioning Unit with Vestibule and hinged door.



Series CL

Air Conditioning Unit, Cast Iron heating element.



Series U

Utility Air Conditioning Unit. Available with Steel or Cast Iron heating element.

Series W

Gravity Furnace. Available with Steel or Cast Iron heating element.

Series P

Gun, Oil Air Conditioning Unit. Steel heating element.

MONCRIEF

Units for GAS·OIL·COAL

STEEL and CAST IRON

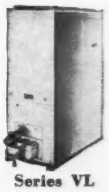
HEATING ELEMENTS

GRAVITY FURNACES
AIR CONDITIONING UNITS
and COUNTERFLOW UNITS

A Furnace for Every Requirement

in the

COMPLETE MONCRIEF LINE



Series VL

Vaporizing Oil, Air Conditioning Unit. Steel heating element.

Important!

MONCRIEF Oil Units, by substituting the Moncrief Gas Burner for the Oil Burner are converted to A.G.A. approved Moncrief Gas Units!

Most Moncrief Gas Units, by substituting the Moncrief Oil Burner are converted to Moncrief Oil Units without any change in efficiency.

Series AC-F

Air Conditioning Unit. Steel heating element.

Series No. 700

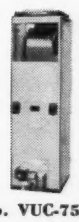
Gravity Furnace. Steel heating element.

MONCRIEF SUREFIT FURNACE PIPE AND FITTINGS

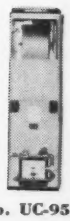
Moncrief Surefit Pipe and Fittings are all that the name implies. Die stamped and machine made, they are manufactured to precision standards. They fit accurately! They fit easily and quickly! They lock tightly.

For either Gravity or Forced Air, Moncrief Surefit Pipe and Fittings provide the best for a streamlined, good-looking and economical installation.

Back of Moncrief Surefit Pipe and Fittings are not only the knowledge and fine workmanship acquired from years of manufacturing experience, but also one of the largest plants in the industry equipped with the most modern machinery.



No. VUC-75-E
Oil Counterflow Unit.



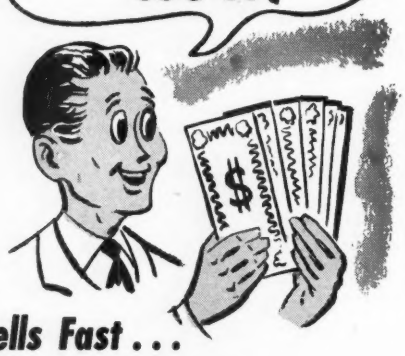
No. UC-95-E
Gas Counterflow Unit.

THE HENRY FURNACE COMPANY

Medina, Ohio

HEATING AND AIR CONDITIONING UNITS — MONCRIEF SINCE 1895 — FURNACE PIPE AND FITTINGS

CASH IN ON SALES OF Klemm FUEL OIL FILTERS NOW!



Sells Fast . . .
Market Unlimited . . .
Good Markup . . . Repeats

You, more than anyone else, have an inside track to get extra income from the sale of Klemm Oil Filters. You know *who* gets oil, *how* they use it, and *which* oil-fired utilities *need* a Klemm filter. You can sell Klemm Oil Filters easily . . . and make a good profit on every sale. What's more, you'll get extra business too from the sale of Chemistone filter elements.

Klemm Oil Filters remove all water, dirt, sediment, rust, and all foreign matter from fuel oil . . . help make customers happy with the oil you sell. Metal bowl units listed Underwriters' Laboratories. All sizes available for every filtering need.

ORDER A SUPPLY FROM YOUR JOBBER TODAY

SILENT SALESMEN

Packed 12 to a carton, Klemm JR model oil filters take little counter space yet do a BIG job of selling themselves. Customers are attracted TO and buy direct FROM this attractive display carton.

ATTRACTIVE DISCOUNTS TO JOBBERS AND DISTRIBUTORS. WRITE FOR FULL DETAILS TODAY.

Klemm
AUTOMOTIVE PRODUCTS CO.
1718 N. Damen Ave., Chicago 47, Ill.

president; A. M. Vorys, Vorys Bros., Inc., Columbus, Ohio, vice president; John Robertson, Robertson Htg. Supply Co., Alliance, Ohio, treasurer and Glenn A. Ashburn, Ashburn Supply Co., Culver City, Calif., secretary.

E. L. Wyman, executive secretary, also released the names of three members of the Advisory Committee, A. H. Johnson, Jr., A. H. Johnson Co., Pittsburgh, Pa., chairman; W. H. Rigby, Herrick Co., Boston; and George F. Wheelock, George F. Wheelock Co., Birmingham, Ala. Fifteen members were elected to the board of trustees.

Change Dates for Truck Tank Institute Meeting

DATES for the annual meeting of the National Truck Tank & Trailer Tank Institute, Chicago 3, Ill., have been changed to February 23 and 24, to be held at the Hotel Morrison. An earlier announcement had indicated the meeting would take place on February 14 and 15.

Chicago Association Elects Officers at Annual Meeting

AT ITS ANNUAL MEETING, held November 29, the Chicago Oil Burner Association, Chicago, Ill., elected the following officers and directors:

F. J. Moran, C. E. Sundberg Co., was named president and G. W. Bennett, Contractors Heat Service Co., vice president. A. F. Krumholz, Jr., Chicago Boiler Co. and S. R. Willey, Willey & MacDonald, Inc., were designated for three-year terms on the board of directors. F. B. Caldwell was retained as secretary-treasurer.

Mr. Moran, surveying immediate future prospects for the Chicago area, describes the territory as definitely oil minded and foresees the atomic age developing a shift to the Midwest, with resulting profit to the alert-minded oil-burner dealer.

Lewis Addresses Combined Boston Dealer Meeting

THE REGULAR MEETING, sponsored by the Massachusetts Oil Heating Association, Inc., Watertown 72, Mass., held on December 13 at the Lafayette Hotel, Boston, and to which members of the Oil Heat Institute of New England were invited, featured a talk by C. E. Lewis, president, Perfex Corp., Milwaukee, Wis.

His address afforded the dealers a well-developed discussion of the "Outlook and trends in the oilheating industry for 1950."

NAFM Bulletin 105 Lists Recommended Size Standards

BULLETIN 105, prepared and issued by National Association of Fan Manufacturers, Inc., Detroit 26, Mich., lists recommended size standards for multiblade and nonoverloading types of fans. Standards for other types of fans also have been established for subsequent release.

The Bulletin replaces the NAFM form X-12, "Physical proportions of commercial fans," which had been prepared on a general comparison of some types of centrifugal fans. The Bulletin has been compiled on the basis of surveys and studies to determine the number of fans required and desirable intervals between sizes.

I-B-R Promotional Program Aimed at Builders, Architects

A PROMOTIONAL PROGRAM, approved at the annual meeting of Institute of Boiler and Radiator Manufacturers, New York, N. Y., held recently at Absecon, N. J., will be designed to bring to the attention of architects and professional builders the latest developments in steam and hot water heating. Supplementing the Institute's successful consumer campaign, the new program, according to John E. Reed, chairman, advertising committee, will shift the emphasis of the group's educational work.

W. C. Murray, president, Utica Radiator Corp., Utica, N. Y., was re-elected Institute chairman at the meeting and S. K. Smith, president, H. B. Smith Co., Westfield, Mass., was re-named vice chairman. R. E. Ferry is general manager and treasurer.

A movement to test and rate baseboards was started at the meeting and announcement made that shortly there would be issued a new bulletin on baseboard heating and the effect of opening bedroom windows at night on the performance of heating systems. Warren S. Harris, special research associate professor, University of Illinois, reported

NEW!

FASCO

6-POLE SHADED POLE MOTORS

1/30 THRU 1/8 HP, 1000 RPM

- ★ Quiet . . . uniform performance at ALL speeds
- ★ Speed reductions to 500 RPM
- ★ Higher efficiency . . . long life
- ★ Mounts to meet every need . . . interchangeable with other motors

"YOUR COMPARISON TEST— WILL PROVE FASCO BEST"

WRITE today for full performance data, dimensions, and applications to Fasco Industries, Inc., 110 Augusta St., Rochester 2, N. Y.

FASCO
INDUSTRIES, INC.

fueloil & oil heat

recommend the low-cost . . .

venko
BOILER

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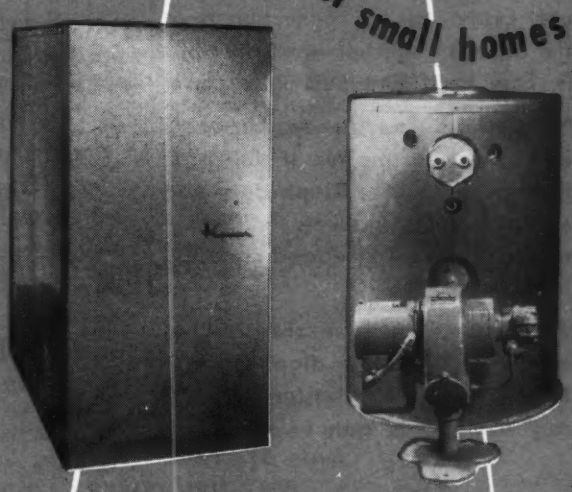
Koven

designed especially for small homes



KOVEN engineers developed low-cost VENKO boilers specifically to meet the requirements of small homes. You can assure your customers that VENKO provides rapid, sustained heat, keeps fuel bills at a minimum, is a dependable performer!
Leading architects, builders and plumbers say the VENKO Boiler is a small homeowner's best buy for years of heating comfort and convenience. It's of welded steel, tubular, and comes beautifully jacketed.

WATERFILM BOILERS, Inc.
A Division of L. O. Koven & Bro., Inc.
154 OGDEN AVE., JERSEY CITY 7, N. J.
Plants: Jersey City, N. J. Dover, N. J.

NEW FILLING Z-I-P

WITHOUT A DRIP

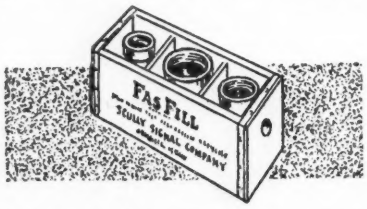
Simple hand-tight connection between Gun and Fill Pipe

$13.50 F.O.B. Factory

FASFILL saves time and money at every drop. Smoother, faster filling, yet never a blowback or fill drip. And FASFILL couldn't be easier to use. Every needed connection is at the driver's fingertips when he wants it. Easy hand turn puts it in place.

No buildups necessary. No tools involved. No matter if fill pipe threads are worn. Diaphragm and sealing point gaskets eliminate need for tightly threaded connecting joints.

Just shove gun nozzle through opening of flexible diaphragm in FASFILL head and let 'er go. Casing wall holds gun in position.



Light weight 3-compartment box carries ALL connections needed for making up to 1¼", 1½" or 2" male or female fill pipe.

SCULLY SIGNAL COMPANY
76 First Street
CAMBRIDGE 41, MASS.

FASFILL®

on the I-B-R-sponsored research program and discussed the study of the performance of indirect water heaters, storage and instantaneous types, carried out last year, and preliminary work done on a water heater test code.

During the coming year, the University will study piping for one-pipe steam heating systems with the object to reduce installation costs, but maintain performance. At the same time, a study of a series connected hot water heating system will be conducted in the I-B-R Research Home. In the system the conventional main will be eliminated and water will pass directly from the boiler to radiators. Maximum permissible water velocities for quiet operation will be studied with a view to the use of smaller pipe sizes.

Mr. Ferry reported that the Institute's field training program will be started as soon as a director has been selected. Several candidates are being considered and all text and visual aids to be used have been prepared.

L. N. Hunter, chairman, research committee, American Society of Heating and Ventilating Engineers, in his report on the Society's panel heating program, said that almost $32,000 was spent on research in 1949 and the 1950 budget calls for a somewhat larger expenditure. Materials have been ordered, he said, for construction of calorimetric rooms where accurate studies will be possible of atmosphere, air motion and radiation in panel heating systems.

Indiana Sheet Metal Group Plans February Convention

THE SHEET METAL and Warm Air Heating Contractors Association of Indiana, Inc. has completed plans for its 32d Annual Convention to be held at the Hotel Severin, Indianapolis, Ind., February 2 and 3. Frank E. Anderson, secretary, in releasing the program, explains that it was compiled to include subjects and activities as reported on a questionnaire survey.

Social highlight of the two day meeting is the banquet and dance to be held on February 2. Morning and afternoon meetings and sessions on both days will include an address by J. D. Wilder, executive secretary, Sheet Metal Contractors National Association, along with technical and merchandising papers.

Readers' Forum

FUEL OIL COMPANY OF ST. LOUIS
Saint Louis, Mo.

Editor:

I thought the article, "Is Fueloil Worth Promoting?", in the December issue was a good one, but it occurs to me that you might want to make a correction. You say, "Down in St. Louis local dealers are putting up a fight with advertising campaigns paid for by the small companies."

I think it would be well to correct this. Shell and Socony have contributed a total of over $9,000 to our campaign. We have a tentative promise from Indiana Standard and this will, no doubt, come through in due time.

When you prepared copy for your issue, I think your statement was correct, although we then had tentative promises from Shell and Socony.

W. F. SCHIERHOLZ

◈

James J. Lee has been elected vice president of Automatic Firing Corp., St. Louis, Mo. He has served as sales manager since 1945, following his return from service with the U. S. Navy.

George W. Walker, industrial designer, has been retained by the United States Radiator Corp., and Pacific Steel Boiler Div., Detroit 26, Mich. Mr. Walker, and his staff, have begun extensive restyling of all U.S. and Pacific heating products.

John P. Graff, director of sales, Modern Heat & Fuel Co., Philadelphia 4, Pa., has been promoted to the rank of Captain, U.S.N. (Ret.). The promotion on the Retired List of the Regular Navy is in recognition for citations and decorations he received during World War II.

A. F. Zissler has been elected executive vice president and general manager, Peerless Electric Co., Warren, Ohio. He has represented the company in the Rochester, N. Y., territory for the past eleven years, but now makes his headquarters at Warren.

here's one place you need "High Pressure"

HEIL PRESSURE ATOMIZING BURNERS BURN OIL BETTER... RETAIN ADJUSTMENT LONGER

Twenty-five years of research and experience in oil-fired heating have proved beyond doubt to Heil that the pressure-atomizing burner is the all-around most satisfactory means for burning oil. The testimony of thousands of service men bears out Heil's findings.

Pressure-atomizing burners are simpler, easier to adjust, more readily repaired. They hold adjustments far longer, have far fewer parts to get out of alignment, to wear out and cause trouble. Hundreds of thousands of installations stand as evidence. It's a strong, solid story, so get out and tell it—*sell pressure!*

HEIL Burners Are More Efficient

By any test, Heil Burners extract more heat from the oil. They can be adjusted easily for a high percentage of CO_2, to burn without annoying pulsations, and they *stay adjusted that way*. Heil uses cast iron, not aluminum or stampings, and Heil machines parts to closer tolerances, balances more carefully to assure better operation, greater freedom from trouble. For your entire protection, Heil tests *every* burner before it leaves the factory.

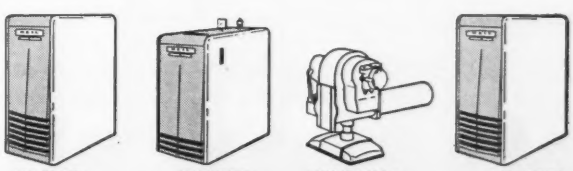
For your own satisfaction, write The Heil Co., Dept. 8310 today, and get the full story. It will interest you. Do it now, while a few territories are still open. You'll like doing business with a major corporation that remembers how to be human.

THE HEIL CO.

GENERAL OFFICES: 3083 W. MONTANA STREET, MILWAUKEE 1, WISCONSIN

Factories: Milwaukee, Wis.—Hillside, N. J.

District Offices: Hillside, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Los Angeles, Seattle.



OIL-FIRED WINTER AIR CONDITIONERS | OIL-FIRED BOILERS | CONVERSION OIL BURNERS | GAS-FIRED WINTER AIR CONDITIONERS

Manufacturers of Quality Automatic Heating Equipment Since 1924

NOW a complete line of modern MARLOW PUMPS for the petroleum marketer!

A MARLOW FOR EVERY PUMPING JOB

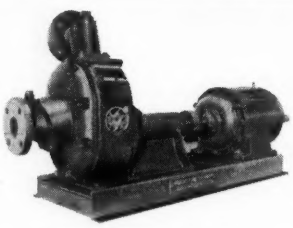
MARLOW CENTRIFUGAL PUMPS

Marlow Type SC

For high capacity and high efficiency in pumping light liquids on flooded suction installations. Close and long-coupled models, sizes 1 to 4 inches, capacities 10 to 1000 GPM. Features include an easily renewable sealing ring at impeller inlet, deep-groove oversize ball bearings, and a John Crane dripless shaft seal. Motors from ½ to 30 HP. Explosion proof or fully enclosed.

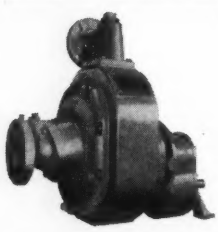
MARLOW SELF-PRIMING CENTRIFUGAL PUMPS

The only light-liquids pump for long, trouble-free service on suction lifts. Marlow Self-Primers offer high capacity and high efficiency with *automatic priming*. Suitable for underground storage or for transfer or loading operations. Close and long-coupled models, sizes 1½ to 10 inches, capacities 15 to 3500 GPM. Self-priming, self-purging design assures automatic priming and freedom from vapor lock. Free clearances at impeller help eliminate wear, prolong life and original high efficiency. Motors ⅓ to 60 HP, explosion proof or fully enclosed.



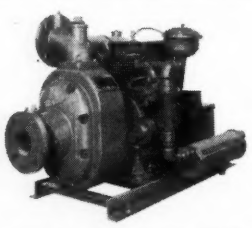
Marlow Type EL

Models also available for belt and engine drive and for high pressure service.



GEAR INCREASER PUMPS

NOW — a *quiet*, dependable centrifugal tank truck pump that couples direct to power take-off. Installs like a rotary but has a centrifugal's smooth efficiency, high capacity and *long life*. Sizes 2 and 3 inch. Capacities 20 to 200 GPM.



ENGINE DRIVEN PUMPS

Marlow Self-Priming Centrifugals for refueling or transfer, where mobility or stand-by operation is required. Sizes 1½ to 8 inches. Capacities 15 to 2000 GPM. 2- and 3-inch sizes available with electric starter and spark arresting muffler for tank truck service.

Wherever pump users gather you will hear the name MARLOW used as a standard of pump efficiency, trouble-freedom and long life. It will pay you, too, to standardize on the standard.

Write the Marlow factory for complete information and the name of the Marlow dealer nearest you.

MARLOW PUMPS

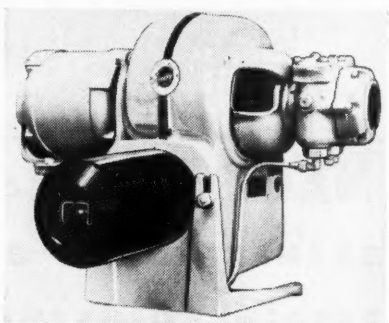
596 Greenwood Avenue, Ridgewood, New Jersey

MANUFACTURERS OF QUALITY PUMPS SINCE 1924

New Products

Kresky Announces Versatile Pressure Atomizing Burner

ENTRY into the pressure oilburner field has been announced by the Kresky Mfg. Co., Inc., Petaluma, Cal., with a single burner, the "1 to 6," that will handle



installations requiring from 1 to 6 gph. The blower design is engineered so that an adjustment of the air intake hood provides sufficient air through the entire range of capacity. Also, the burner is supplied with two deflector snouts, one for jobs requiring 1 to 3 gph, the other for the larger sized installations.

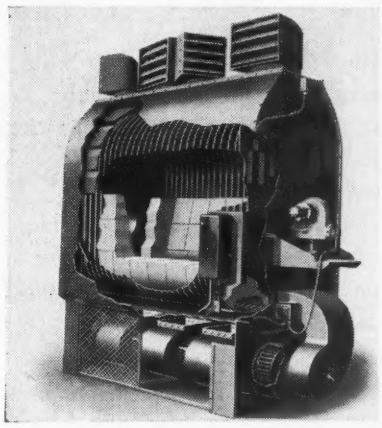
The burner features an adjustable pedestal stand and a flange so that the single model is adaptable for either type mounting. To remove the complete assembly of transformer, ignition electrodes and burner tip requires the removal of only four screws on the black plate.

The company is a manufacturer of a complete line of furnaces, floor furnaces and water heaters, fired with the Kresky forced air induction burner.

Lee Direct Fired Warm Air Heaters Include Oil Models

OILFIRED MODELS are included in the line of direct-fired warm air heaters made by Lee Engineering Co., Hoboken, N. J. Capacity for all models ranges from 300,000 to 8,000,000 Btu in a single unit, equipped with directional heat distributing devices on top of the heat-

ers. Some models employ tubes through which the air passes to be heated, others use a deeply corrugated shell and the larger units employ a combination of



both. The unit pictured is a model that has a corrugated shell as the heat transfer medium.

The heaters can be moved easily to any location and during the Summer months can be used for ventilation and air circulation. They may be floor, wall or roof mounted and can be changed easily from one type of fuel to another. Either stainless steel or refractory combustion chambers are available.

Ford Rouge Truck 254 Six Engine Announced

A MORE POWERFUL six-cylinder truck engine, with four-speed synchro-silent transmission, has been announced by the Ford Motor Co., Dearborn, Mich., as optional equipment on series F-6 Ford trucks.

It has been designed to provide greater acceleration for heavy hauling and high speed on grades and designated the Ford Rouge 254 Truck Six engine. It develops a maximum of 110 hp., 212 lb. ft. torque and is the largest six cylinder engine produced for Ford trucks.

Fuel Conservor Being Marketed by Frankland Corp.

FRANKLAND CORP., Ferndale, Mich., furnace manufacturers, are marketing the Frankland Fuel Conservor. It is made of a high-heat ceramic material, similar to firebrick, and is mounted in the interior of a furnace or boiler. An interceptor collar, placed a few inches above the combustion chamber, and a set of four circular turbulator units, mounted one over the other, direct the

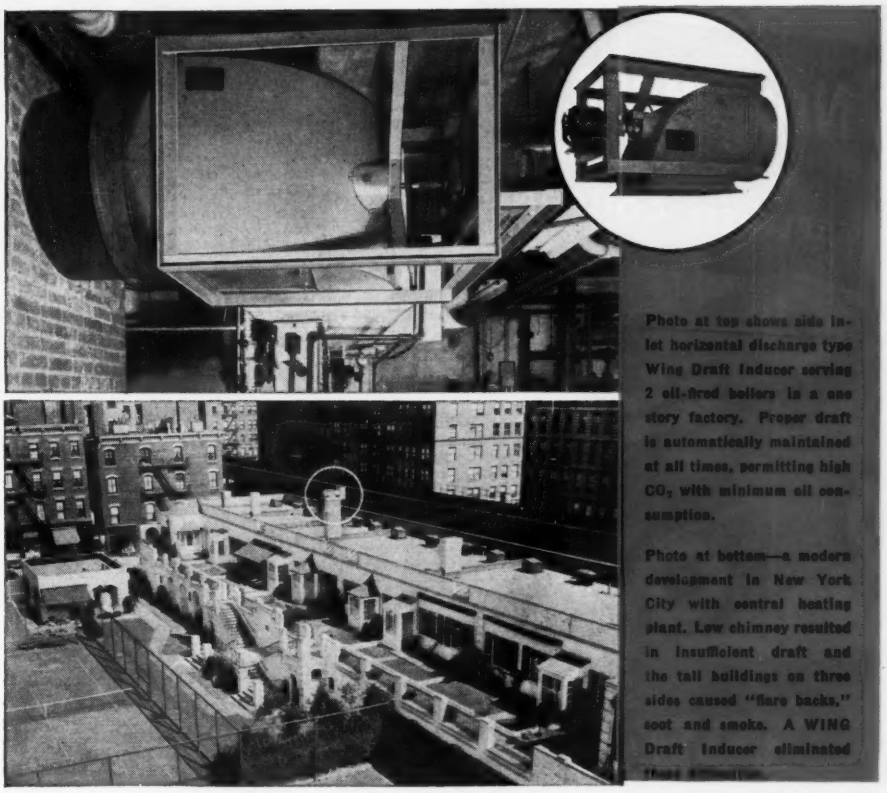


Photo at top shows side inlet horizontal discharge type Wing Draft Inducer serving 2 oil-fired boilers in a one story factory. Proper draft is automatically maintained at all times, permitting high CO_2 with minimum oil consumption.

Photo at bottom—a modern development in New York City with central heating plant. Low chimney resulted in insufficient draft and the tall buildings on three sides caused "flare backs," soot and smoke. A WING Draft Inducer eliminated

Positive Draft REGARDLESS OF WEATHER OR SIZE OF CHIMNEY

The Wing Draft Inducer provides a means for furnishing positive, uniform adequate draft for low pressure heating plants without the need for tall, unsightly, expensive stacks.

It permits operating at high efficiencies without regard to weather conditions.

Thorough and efficient combustion with high CO_2 content is assured. Smoke, gas and explosion hazards are reduced or eliminated.

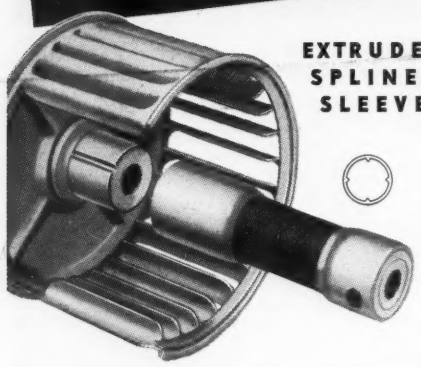
L. J. Wing Mfg. Co. 154 West 14th Street, Dept. FO, New York 11, N. Y.

Factories: Newark, N. J. and Montreal, Canada

WING

Wing DRAFT INDUCERS

NEW IMPROVED
GUARDIAN FLEXIBLE
SPLINED COUPLING

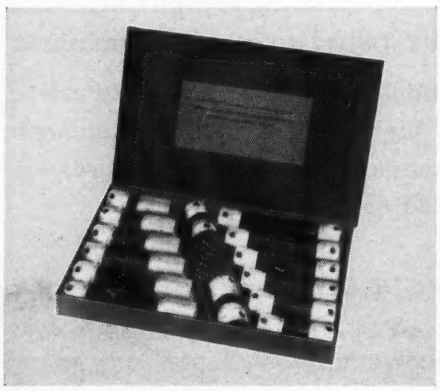


EXTRUDED SPLINED SLEEVE

The new Splined Type Guardian Flexible Coupling is designed for dependability and long life. Four extruded sleeves of hard aluminum casting fit hub with close, .001 inch tolerance. These famous Couplings eliminate end thrust and oil leaks. Easy to install!

REGULAR SET SCREW TYPE GUARDIAN FLEXIBLE COUPLING

Guardian direct drive couplings minimize alignment and backlash problems. Rubber is oil resistant. Nothing to lubricate. Nothing to get out of order. Many lengths and bore sizes, or made to your specifications.



Handy Kit contains both type couplings—a variety of sizes and bushings to meet 97% of today's requirements. Order yours today.

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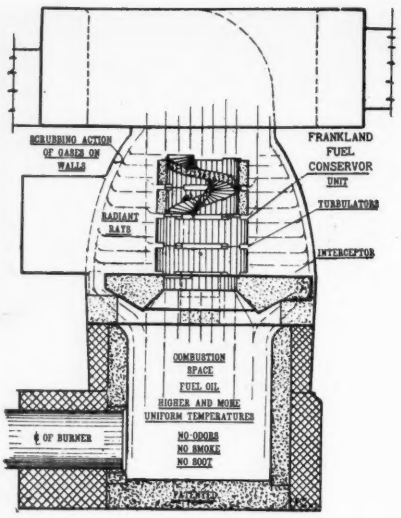
Guardian
PRODUCTS CORP.
COUPLING DIVISION
1231 E. Second Street
Michigan City, Indiana



flow of flue gases. The unit rests on four firebrick, placed on the chamber, and is described as capable of almost complete elimination of soot formations.

Rising gases from the oil flame are caught by the interceptor collar and shot out the sides of the turbulators through a series of twelve ½" x 5" slots against the furnace walls. The bulk of the gases are delivered from the top of the conservor directly against the bonnet or boiler section. Inside the turbulators the gases make two complete turns before being released. The 3,000° F. ceramic material, from which the Fuel Conservor is made, acts as a reservoir for heat, which is given off during the burner "off" periods.

Marlow Adds New Series of Straight Centrifugal Pumps

ADDITION of a new line of straight centrifugal pumps has been announced by Marlow Pumps, Ridgewood, N. J., expanding the full line to 56 basic series of pumps. The additions are self-primers for installations with suction lifts where automatic priming is required, are 1½ to 10" in size, capacities from 15 to 3,500 gmp. They may be electric motor, belt, gasoline or Diesel driven and can be furnished in models for high pressure service. Motors from ½ to 30 hp are splash-protected and are available in explosion proof or fully enclosed models.

Consisting of casing, impeller with shaft sleeve and driving motor, the units may be installed and operated in vertical or horizontal positions. Features include a renewable sealing ring at the suction inlet and deep-groove oversize ball bearings sealed against dirt and moisture. Stuffing box is designed to contain a liberal number of packing rings.

Kent Tubular Boiler Flue Cleaner Brush

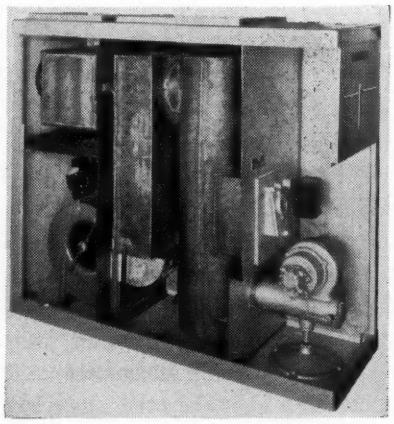
A TUBULAR BOILER flue cleaner brush, to be used in conjunction with the Kent double suction furnace and boiler cleaner, has been announced by the Kent Co., Rome, N. Y. Available in 2", 2½", 3", 3½" and 4" sizes, the brush enables an operator to clean tubes in hot water and steam boilers thoroughly and quickly, without scattering soot.

Regular removal of soot deposits contributes greatly to operating efficiency and economy. The development of this new type brush is explained as making this once unpleasant and arduous task, a great deal easier and cleaner.

Autocrat HealthMaster Furnace Unit Redesigned

MODEL 0-100-D oilfired Autocrat HealthMaster winter air conditioner, made by Chandler Co., Cedar Rapids, Ia., has been completely redesigned. The unit is rated at 100,000 Btu/hr output at the register, and is one in a line of five models. Capacities for the other in the series range from 125,000 to 250,000 Btu/hr register output. The new unit features a combustion chamber, radiator and economizer of one-piece welded construction and blower doors located on both sides. There is provided also a solid base, with levelling screws obviating the necessity to have a level cement base under the unit. If it is desired to use a cement base, cement can be inserted under the base after it has been levelled.

Standard equipment on HealthMaster



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LONGEST Line
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YORK YH HEAT

York-Heat's 1950 line again is the longest in the automatic heating industry . . . *Fifty* different models for '50 —field pre-tested—oil and gas-fired—proved under operating conditions — give *York-Heat* dealers the right unit every time.

But *York-Heat* offers more than equipment. Its franchise is the industry's strongest—time-tested by 32 years of consistently greater sales, consistently greater profits where aggressive field forces have put solid effort behind sound equipment.

York-Heat's "50 for '50" program—created by men with long experience on national and local sales fronts—includes a retail sales manual, national financing, seasonal campaigns, retail contests, local and national advertising, local direct mail literature—to name a few.

Some openings exist for merchandising-minded dealer organizations. Write for facts on the York-Heat franchise . . . the industry's strongest.

HATS OFF • Starting a New Year, we salute and thank *York-Heat* distributors and dealers the country over . . . the most loyal and cooperative team that ever made a manufacturer's job more challenging.

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For Heavy Oil

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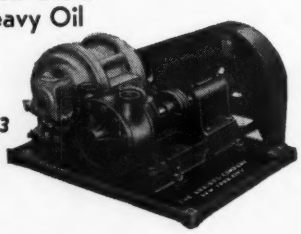

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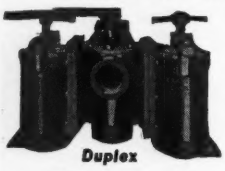
Baskets instantly and easily changed — eliminates filter replacement costs entirely.



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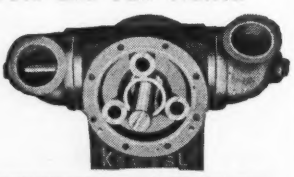
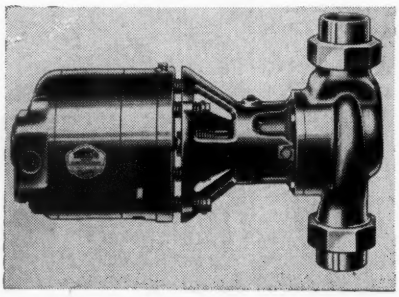


KRAISSL CO. Inc.
295 WILLIAMS AVE., HACKENSACK, N. J.

units include an Autocrat gun type oil-burner, controls, automatic draft regulator, humidifier and filters. Available as an optional item is a hot water heater to furnish domestic hot water during the heating season. It employs an adjustable baffle to regulate water temperature.

Thrush Horizontal Circulator Is Available in Six Sizes

SIX SIZES of a new horizontal water circulator are available from H. A. Thrush & Co., Peru, Ind. Unioned sizes are offered in 1", 1¼", 1½" and 2" sizes; flanged sizes in 2½" and 3" sizes. Con-



struction of the circulators assures permanent alignment, through spring mounting and coupling, with resultant quiet operation.

Features include a pump bearing with sealed-in lubrication, a ground and polished stainless steel shaft, brass impeller and impeller plates. A specially designed motor drives the pump, equipped with a handy side outlet motor junction box. All 60 cycle motors have automatic thermal protection.

Rochester Mak-Saf Switch Prevents Short Circuit Fires

DESIGNED FOR USE on cars or trucks, the Mak-Saf circuit switch, announced by Rochester Mfg. Co., Rochester, N. Y., was developed to prevent short circuit fires in motor vehicles. It works in two ways. First, it permits an operator to disconnect all electrical energy in a vehicle by pulling a handle on the dashboard and second, a signal light flashes to indicate any short circuit or electrical loss in the vehicle. The switch is sturdily constructed with heavy-duty copper plates, with positive contact assured by double compression springs exerting more than 50 lbs. pressure. The entire case is made of non-conductive material insulating all terminals.

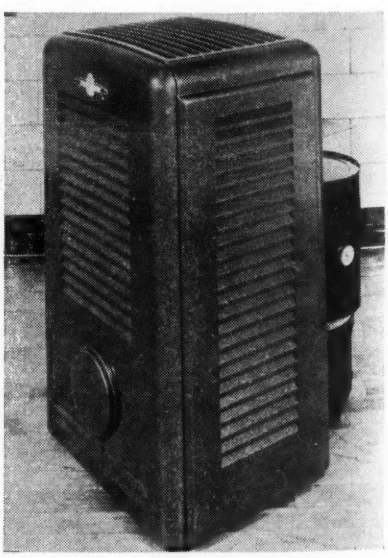
The Mak-Saf switch allows owners to store motor vehicles with safety from short circuit fires and battery discharges by pulling the dashboard handle. In the event the voltmeter regulator is out of adjustment, a partial pull on the handle will disconnect the generator field until repairs can be made.

Shown above *is the No. 72 Auto-Vent, expansion type air valve, made by Maid-O'-Mist, Inc., Chicago 41, Ill. and which was described on page 104 of our November issue. The valve is for installation on convectors, baseboards and free standing radiators. The November write-up failed to specify the No. 72 is for use only on hot water heating systems.*

Perfection Adds Model 2131 To Oilfired Space Heaters

MODEL 2131 oilfired space heater is the latest addition to the line of Perfection Stove Co., Cleveland 4, Ohio. It is a small unit, measuring 33¼" high and 19" wide. Its rated output is 30,000 Btu/hr.

Fuel is fed to the heavy gauge steel burner from a fixed reservoir at the back of the heater, which features a patented bayonet-lock lighter opening plug built-in the burner. Standard equipment on model 2131 includes an automatic draft regulator, with a thermostatic control available as an accessory. Finished in



It's Completely Automatic!

● For the home owner who prefers oil heating the new Rybolt Oil-Fired Winter Air Conditioner offers unusual convenience, comfort and economy.

It is completely automatic—a feature that will prove a powerful sales appeal to your customers. Once installed and set for the desired temperature the home owner can be assured that it will continue to provide even comfortable heat throughout the house, as long as it receives the ordinary attention and service required by any mechanical appliance.

The burner, unusually efficient, practically trouble-free and easy to service was designed by engineers who have specialized in oil burner construction for more than a quarter century.

Fully enclosed in an attractive cabinet, finished in two-toned baked enamel, the burner controls and top mounted blower are completely concealed and protected, yet accessible for quick and convenient servicing.

It's another Rybolt unit you'll be proud to handle because it insures lasting heating satisfaction and economy.

MEMBER NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION INDOOR COMFORT

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615 MILLER STREET ★ ASHLAND, OHIO

fueloil & oil heat

brown baked enamel, the heater is free of trim of any kind.

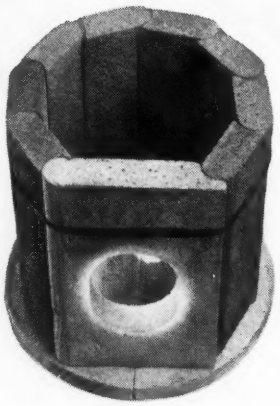
Flexible Metal Hose And Flanges Made by Penflex

FLEXIBLE METAL HOSE and flanges to handle petroleum and chemicals and still remain leakproof have been announced by Pennsylvania Flexible Metallic Tubing Co., Philadelphia 42, Pa. The hose, tested successfully in handling fueloil and kerosene, withstands pressures up to 350 lbs., is extremely flexible and reported able to stand up under tough treatment.

The Penflex Titepak flanges, developed for use with the hose, are lighter in weight and have proved leakproof under test conditions.

Silent Fire Prefabricated Oilburner Combustion Chamber

NOCK FIRE BRICK CO., Cleveland 14, Ohio, announces the Silent Fire oilburner combustion chamber, available in sizes for oilburner capacities from .75 to 3.25 gph. The chambers are constructed of high temperature, insulating fire brick, light in weight and sound



absorbent. The fire brick is soft enough to be sawed or notched with a hack saw or wood rasp to fit around grate lugs.

The chambers are round in shape, made up of varying numbers of side plates, depending upon size, and a front plate with a 5" wide slot for the gun tube of the burner. All material required is packaged in a single carton, with the size of the chamber stencilled on the side of the carton. No cementing is necessary or recommended as the chamber's interlocking style does not require it. A two-piece round base acts as a template to center the chamber.

Tork Super T Fuel Control For Multiple Dwelling Use

SUPER T multiple dwelling fuel control, developed by Tork Clock Co., Inc., Mt. Vernon, N. Y., provides automatic operation of light or heavy oilburners. Outside temperatures, recorded on Tork's Weather Head, normally installed outdoors in the shade, plus radiation losses of the building, determine the "on" and "off" action of the control. The head is adjustable to stop systems completely when outside temperatures reach 55° F., or any other desired degree.

The units are furnished in durable, padlock cases and operate on 115 or 220 volts, 60 cycle A.C.

Brandes Wall Base Units For Warm Air Heating

WALL BASE HEATING, as developed by Brandes Co., Madison 4, Wis., is described as a practical, simple method of applying heat at the base of cold outside walls, causing heated air to flow upward adjacent to the wall. It consists of a 20 gauge steel shell, which takes the place of the usual baseboard and into

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For domestic use. Perfectly tempers hot water to any desired temperature at lowest cost.
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Can be used with steam or hot water heat. No separate by-pass for mixing valve. 75% hook-up savings.
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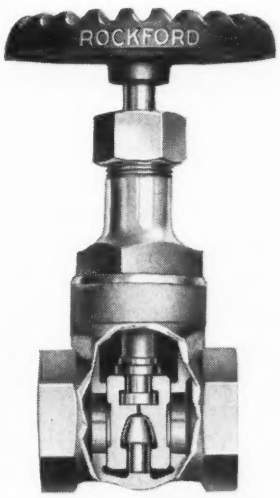
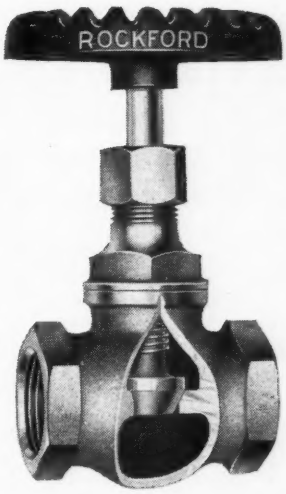
PRECISION MADE FOR DEPENDABLE SERVICE

Precision workmanship combined with practical design has won for Rockford Brass Valves the confidence of installation men wherever these valves have been used. You can bank on the high quality and dependability of these units to pay off in good performance every time. Use them on your next job!



No. 819
BRONZE GATE VALVE Capable of handling jobs, with absolute safety, up to 125 lbs. working pressure. A sturdy, quality built valve with double disc, rising stem and oil proof packing. Thoroughly dependable on oil, water or steam lines. Sizes range from ¼" to 2".



No. 814
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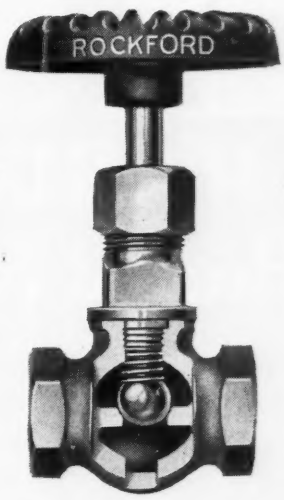
Specially designed for oil line service . . . also used for water, air, gas, steam and general purpose. Note cutaway view showing special improved Rockford design of stem and seat. Sizes range from ¼" to 2".



No. 814A
ANTI-HUM VALVE Rockford oil burner line control valve throttles out objectionable burner noise with perfectly balanced control. Phosphor bronze ball and spring . . . special Rockford stuffing box with oil proof packing. Made in ⅜" female I.P.S. only.

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ROCKFORD BRASS Valves

fueloil & oil heat

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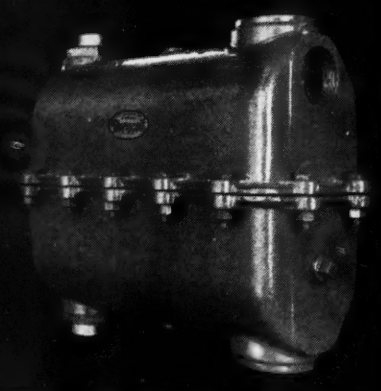

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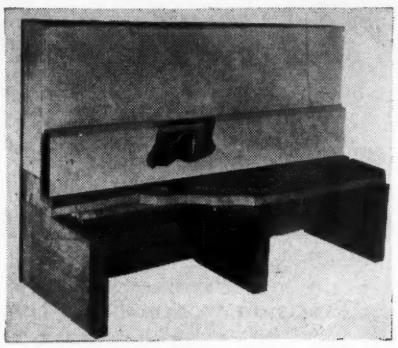


which the warm air supply duct feeds warm air. The shell is slotted along its upper side and distributes the heated air vertically through the slot.

The base is supplied in standard lengths and is cut to fit the installation. Since it replaces the conventional register and distributes vertically, it provides more freedom of furniture and furnishings arrangement. Also, the Brandes units perform effectively on continuous air circulation systems.

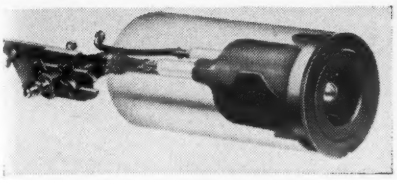
Shell Develops Ingredient To Stop Filter Screen Clogging

DISCOVERY of a new fueloil ingredient, called FOA-5X, has been announced by the Shell Oil Co., New York 20, N. Y. It is described as virtually eliminating filter screen clogging in oilburners, was first developed in 1945 and since then has proven effective in thousands of field tests. All domestic heating oil processed at Shell refineries for the 1949-50 heating season will contain FOA-5X.

Filter screen clogging is caused by the coagulation under certain conditions of microscopic substances present in virtually all fueloils. By keeping these particles in suspension, FOA-5X prevents sludge formation and also retards the formation of rust and scale in storage tanks. Laboratory research has been conducted since 1930, but it was not until 1944 that the cause was discovered with the "cure" developed the following year. Research and laboratory work was performed at Shell's Seawaren, N. J., fueloil and oilburner laboratory, which also developed the Shell combustion head.

Adjustable Firing Head Standard on Century Burners

A FIRING HEAD that permits accurate flame adjustment is being furnished as standard equipment on model L and the "Cushion-Cradled" model O pressure atomizing burners made by Century En-



gineering Corp., Cedar Rapids, Ia. Conversion kits also are available for adding the head to Century model L burners in the field.

The electrodes and nozzle in the head are housed in a separate shell within the manifold tube. The inner assembly can be moved forward or backward to adjust the ratio of primary to secondary air. The design was developed to assure constant air pressure and volume around the nozzle and provide for varying the amount of secondary air that passes around the outside of the nozzle-electrode tube to the combustion chamber.

Therm-O-Glo Compound Seals Combustion Chamber Floors

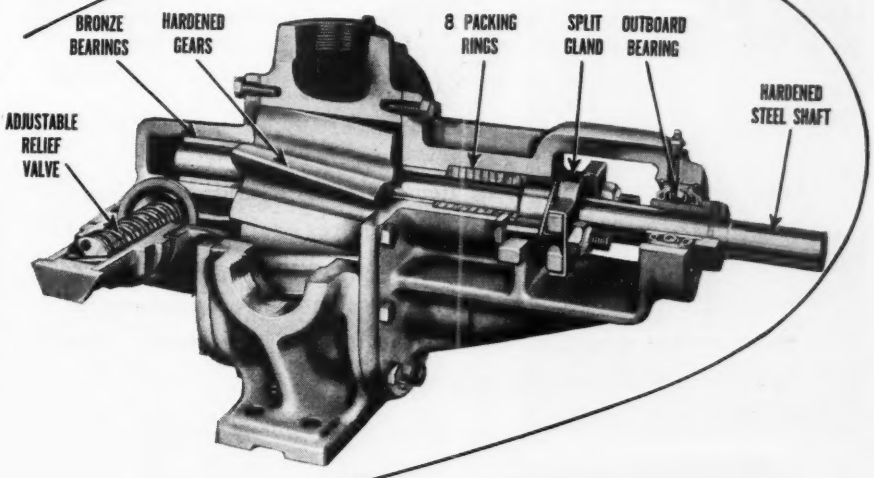
THERM-O-GLO COMPOUND available from Fiske Products, Inc., Pleasantville, N. Y., is a preparation used to seal and insulate the floors of oilburner combustion chambers. An inch of the powdered preparation is sprinkled on the chamber floor. The heat from normal burner operation eventually crystallizes the powder, shrinking it to about one-half inch in depth. Under the high temperatures encountered the top surface is a hard reflecting crust, under which fusing causes tiny vacuum pockets to form, giving the mass effective insulating qualities.

In addition to preventing heat loss through the combustion chamber floor, the Therm-O-Glo fireproofs and waterproofs, seals cracks and leaks and prevents shrinkage of the earth beneath the boiler or furnace caused by drying out due to the intense heat. Also, the preparation can be applied around the top edge of the combustion chamber. This crystallizes in the same manner and forms a strong bond to cement the chamber or refractory bricks.

Ex Cel Model C Oilburner Offered in Two Styles

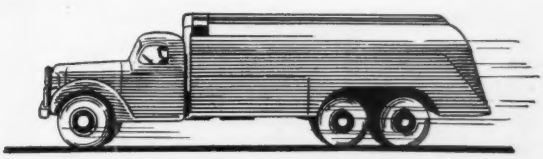
FLANGE or pedestal mounting types can be furnished of the new model C, high pressure atomizing oilburner, announced by Ex Cel Co., Dowagiac, Mich. Models also can be furnished with blast

Specify ROPER Rotary Pumps FOR TANK TRUCK SERVICE



EASY TO INSTALL, OPERATE, SERVICE

Get the pump that delivers the goods speedily, efficiently. Specify this Roper 3600 Series pump which is specially designed to serve the needs of tank truck operations. • This is a complete unit, ready for hook-up on any type of drive, and for all conditions of piping and mounting. • It is complete with an adjustable relief valve which assures full capacity when pumping and allows nozzle shut-off without stopping the pump. • Bearings are high-lead bronze . . . packing box is deep and has 8 split-ring packings . . . split gland makes repacking easy . . . gears run smoothly in axial hydraulic balance. • The Roper Series 3600 truck pump is ideal for new installation or replacement . . . is built in 7 capacities from 40 to 200 g.p.m. • Send the coupon below and receive all the facts!



ROPER Rotary Pumps

GEO. D. ROPER CORPORATION
761 Blackhawk Park Avenue, Rockford, Illinois

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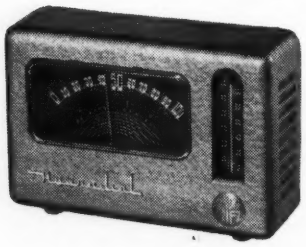
The proper installation of new equipment and satisfactory maintenance of old installations requires exact knowledge of relative humidity and temperature conditions. Bendix-Friez, manufacturers of the world's foremost meteorological equipment, makes a quality line of servicemen's instruments for heating and air conditioning work.



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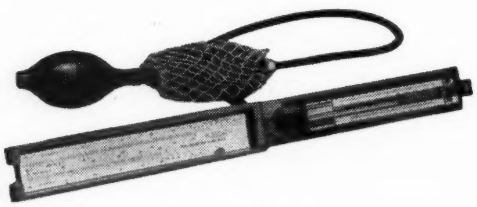
Precision Humidity and Temperature Indicator, Model 185

Hair-operated and calibrated to professional standards of accuracy by the maker of the world's finest weather instruments. Handsome, modern case—4″ high, 5½″ wide, 1⅝″ deep —desk or wall mounting. A genuine precision indicator reasonably priced.



BENDIX-FRIEZ

Hand Aspirated Psychrometer, Model HA/2

Pocket size, a new standard of convenience in measuring relative humidity. Accurate readings obtainable without special skill. Psychrometric readings can be taken at any point desired however inaccessible.

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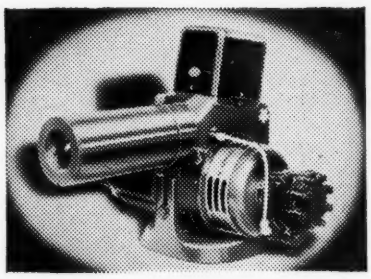
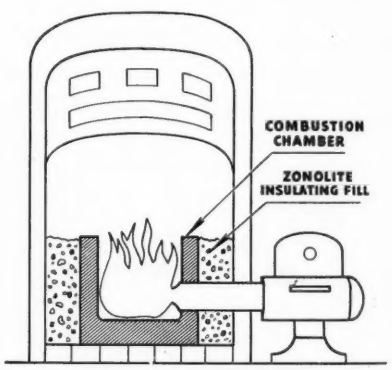


tube lengths up to 12″, from 13 to 17″ and from 17″ to 24″.

Made with a cast aluminum housing, construction features standard parts to permit interchangeability and facilitate service and maintenance. Capacities range from .75 to 2.5 gph, with prices described as being competitive.

Zonolite Insulating Fill For Combustion Chambers

THE USE OF Zonolite Insulating Fill is recommended to eliminate heat losses from oilburner combustion chambers,



minimize burner rumble and operational noise, according to the Zonolite Co., Chicago 3, Ill., manufacturers of the product.

It is composed of Vermiculite, described as being rotproof and permanent, with a fusion point in excess of 2400° F. The chemically inert fill is installed merely by pouring it from the bag in which it is shipped into the space to be insulated. It fills in around flanges and tie-rods without packing.

Dodge Offers New and Expanded Line of Trucks

A NEW, EXPANDED line of trucks, announced by the Dodge Div., Chrysler Corp., Detroit 31, Mich., includes 356 basic gross vehicle weight models. The "Job-Rated" line now ranges from 4,250 to 23,000 lbs. gross vehicle weight and up to 40,000 lbs. gross combination weight. Nominal ratings have been increased to include some 2¾ and 3½

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Yes, here's your "in" to increased business and profits! The famous Grand Rapids Furnace Cleaner not only gets you into the customers basement but gives you an excellent opportunity to check over each heating plant as it is cleaned.

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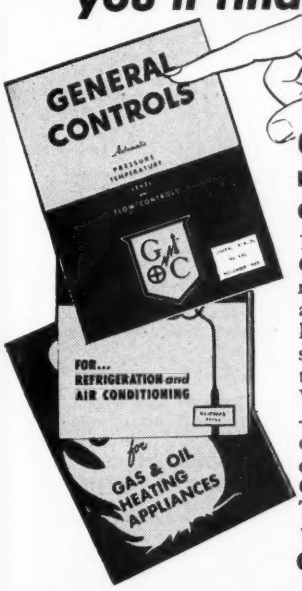

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104 pages covering the *complete* General Controls line of Automatic Pressure, Temperature, Level and Flow controls. It charts, tabulates and details, capacities, pressures, dimensions and specifications of hundreds of controls. Whatever the product or process—in heating, refrigeration, aircraft or industry, there's a *better* General Control for the job. General Controls *do* more and cost *less*. The new Catalog tells how and why Send for your copy today.

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Automatic Pressure, Temperature, Level and Flow Controls
FACTORY BRANCHES: Baltimore (5), Birmingham (3), Boston (16), Buffalo (3), Chicago (5), Cincinnati (2), Cleveland (15), Dallas (1), Denver (4), Detroit (8), Glendale (1), Houston (6), Kansas City (2), New York (17), Minneapolis (2), Philadelphia (40), Pittsburgh (22), San Francisco (7), Seattle (1), St. Louis (12), Tulsa (6).
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QUALITY FUEL OIL GAUGES to Meet Your Needs

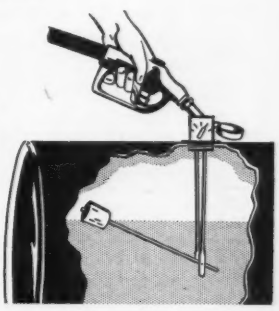
Galongage

Outstanding in the field, *Galongage* is designed to meet the most exacting requirements for durability, accuracy and reliable service. It comes fully assembled for quick and easy installation. *Galongage* is built to fit all standard basement tanks and is the only gauge generally used that measures in gallons. In appearance *Galongage* does credit to the finest installation and has strongest consumer appeal.

International

Best of lever arm type gauges. • Built oil-tight at factory. • Ready for quick and easy installation. • No need to assemble or make any time-consuming adjustments. • Flexible float arm greatly simplifies installation. • Only necessary to insert float and screw in gauge. • Extra large, easy-to-read numbers on longest aluminum dial calibrated in eighths. Well suited to large scale building projects.

Fil-thru



For 55-gallon oil drums. Meets all requirements. Gauge, vent and fill-pipe all in one. Installed without wrench or tools of any sort. To fill drum, gauge need not be removed. Hinged cover is just lifted and replaced. Old-fashioned measuring sticks are out. With Fil-Thru user knows at a glance when to order and fill man can tell at once how much is required. Attractive in appearance, rugged in construction, rainproof and non-corrosive.

APPLIED MECHANICS COMPANY
167 OLIVER STREET, BOSTON 10, MASSACHUSETTS

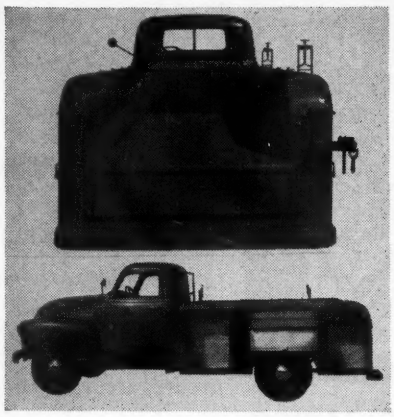
ton models. The broadened coverage includes conventional trucks, dual purpose and cab-over-engine models and route-van delivery trucks.

One completely new engine is among the seven offered and 14 models have been added to the 1½ ton group. Rear loading height on these models has been reduced more than one inch by a change in spring contour. In the ½ ton pickup models two body heights are available, 17" and 22 7/16".

Among new features on the new B-2 series are a 5-speed synchro-shift transmission, and overdrive transmission, cyclebonded brake linings, steering column gearshift. All conventional models feature cross steering, providing a 37° turning angle.

Hesse Carriage Journey Shop Utility Body for Truck Chasses

JOURNEY SHOP truck body, developed and sold by Hesse Carriage Co., Kansas City, Mo., features electrically welded, all-steel construction. Designed to permit orderly loading and arrangement of tools, the utility bodies have four large



compartments along the sides, with partitioned bins for fittings and small tools. Shelving for miscellaneous supplies also is provided, as well as a utility vise and pipe rack. All compartments are equipped with padlocks and the large interior floor space is covered with a safety steel tread plate.

The company advises dealers ordering new truck chassis from local dealers to specify consignment to Hesse's factory for body mounting and handling. If preferred, the bodies can be shipped on skids, with a prime coat of paint applied.

Campbell E-Z Up Tool For Upending Oil Drums

THE E-Z UP drum upending tool, developed by D. S. Campbell Co., Cleveland 3, Ohio, features two V-shaped strap-iron saddles. A leverage saddle at the end of the tool laps over the top expanded rolling hoop of the drum, while a lifting saddle fits tightly to the drum head at two points under the rim which supports the lifting weight. As leverage is applied, pressure forces the saddles to spread and grip the drum surfaces. The tool weighs 6 lbs., is made of 1" heavy-wall tubing of all welded construction, and is 42" long.

Excelsior Announces New Oilfired Winter Conditioners

THREE MODELS of Unique oilburning winter air conditioning units have been announced by the Excelsior Steel Furnace Co., Chicago 6, Ill. Equipped with gun type oilburners, and fired at rates of .75, 1 and 1.25 gph, the units offer a choice in capacity from 84,000 to 157,000 Btu. The units feature a sectional heat exchanger, providing a longer path

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BASEMENT or UNDERGROUND

Price domestic fuel oil storage tanks are manufactured to Underwriters specifications and bear Underwriters labels.

Obround Basement (Vertical or Horizontal)			Round Underground		
Cap. in Gals.	Gauge	Size	Cap. in Gals.	Gauge	Size
275	14 or 12	27 x 44 x 60	285	12	38 x 60
220	14 or 12	27 x 44 x 48	550	12	46 x 76
235	14 or 12	22 x 44 x 60	1000	10	52 x 110

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THE MODERN DEVELOPMENT FOR BEST OIL COMBUSTION

- ***MORE HEAT FROM LESS FUEL***
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PAYS FOR ITSELF SEVERAL TIMES OVER IN LOWER UPKEEP

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For more than twenty years R & I have specialized in the manufacture of the following products:

Stic-tite Insulating Cement for covering boilers, etc.
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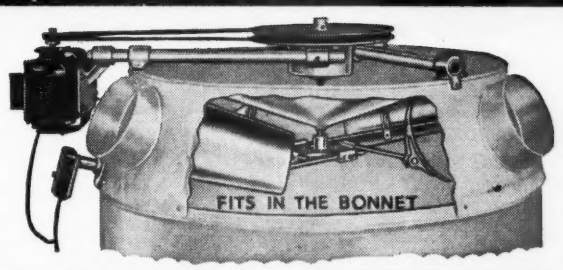
BIG PROFITS during Winter Months

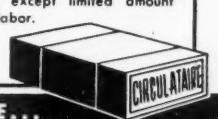


CIRCULATAIRE BOOSTER FAN ELIMINATES COLD ROOMS, BALANCES HEAT DISTRIBUTION

No slump in winter months for CIRCULATAIRE dealers. The CIRCULATAIRE can be easily and quickly installed on the coldest day in winter with practically no inconvenience to the homeowner. Get your share of the big profits all through the cold weather installing CIRCULATAIRES when they're *most needed* and *easiest sold.* Easily and Quickly Installed without removing bonnet. Rigid—Quiet—Efficient.

NOW READY—*New CIRCULATAIRE Sales Aids add effectiveness to selling interview, conserves valuable selling time and increases sales.*

A COMPLETELY PACKAGED UNIT
Nothing for the dealer to furnish except limited amount of labor.



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CIRCULATAIRE DIVISION OF CORLETT-TURNER CO.
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SCOTT S-N NEWCOMB

SINCE 1918

PIONEERS in AUTOMATIC HEATING Can Help You MAKE *More Money*

with FAST-MOVING, EASY TO SELL...

1 S-N OIL BURNERS—Top quality at low prices—quiet, efficient, dependable, and economical in operation. In sizes from 1 to 20 gallons per hour.

2 LOW PRESSURE BURNERS—burn the low cost heavier oils at rates as low as ½ gallon per hour. CONVERSION KITS enable you to convert *any make* high pressure burner to LOW PRESSURE. Also available are combination gas-oil burners and gas burners.

3 CONVERT ANY MAKE OIL BURNER TO GAS FUEL—with Scott-Newcomb's new gas head.

4 COMPLETE LINE OF BOILERS—steam or hot water for any kind of fuel. They get more heat from the fuel—because of their superior design.

5 Revolutionary NEW RADIANT HEATING System—complete with domestic hot water heater at a price competitive with warm air heating.

NO CONCEALED PIPES • NO AIR STRATIFICATION
NO DUST or DIRT • NO HEAT REGISTERS IN ROOMS

CAN BE INSTALLED IN **EXISTING** OR NEW HOMES WITHOUT ALTERATIONS!

HERE is today's greatest opportunity to satisfy the demand for the *modern comfort* of Radiant Heating at **LOW COST.**

Some Scott-Newcomb territories are now open and being assigned.

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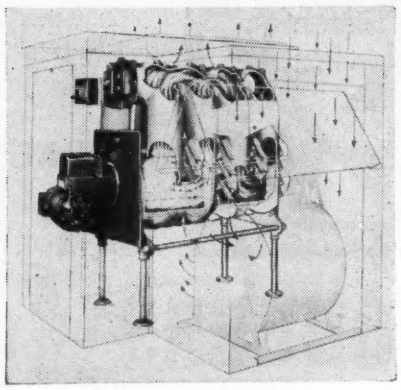
SCOTT S-N NEWCOMB

SCOTT-NEWCOMB, INC.
1450 So. Boyle Ave., St. Louis 10, Mo.

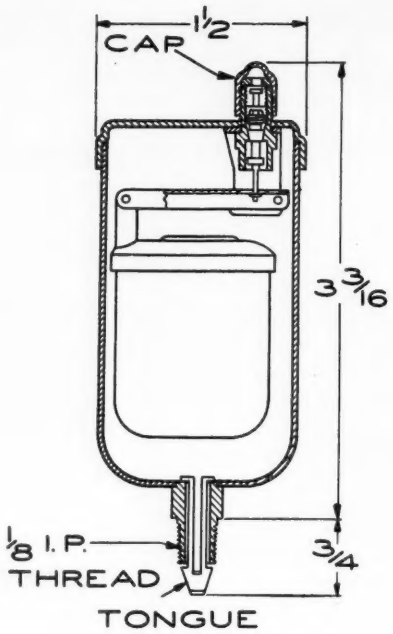


for hot flue gases. Depending on furnace size, the heat exchanger is built of two, three or four sections, constructed of a special alloy iron.

Other features include a refractory lined combustion chamber, large, slow-speed, automatically controlled blower. Unique furnaces are jacketed in an insulated casing, finished in mulberry hammerloid.

Maid-O'-Mist No. 67 Valve For Convectors, Baseboards

NO. 67 AUTO-VENT air valve for continuous venting of hot water convector and baseboard radiators has been announced by Maid-O'-Mist, Inc., Chicago 41, Ill.



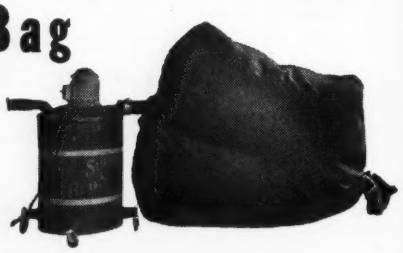
It has been designed for use where space is limited and is built entirely of non-ferrous metals. The No. 67 measures 3 3/16" x 1½", with ⅛" I.P. thread, is a float-operated air valve that requires no air chamber and is for use on hot water heating systems on which pressures up to 30 lbs. are reached.

Health Trola Blower Unit For Winter and Summer Use

HEALTH TROLA units, available from Excel Heating & Air Conditioning Co., Chicago 18, Ill., can be used in conjunction with furnace or boiler systems, during the winter or summer months. Winter operation consists of drawing air into the unit through 3 air filters, next through 3 Odr-Sorber activated carbon panels and through the rays of two ultra-violet lamps for air sterilization. The air then is expelled across a series of evaporator plates for humidification. The humidifier is equipped with a float valve that automatically maintains water at a constant height in a small reservoir pan.

During the summer months the unit is used for air circulation and ventilation in the same manner. The humidifier can be shut off on humid days. The components, such as air filters, activated carbon panels and ultra violet lamps can be replaced easily and quickly, while the water reservoir pan and

Vacuum Clean Oil Burners With the New SUPER Filter Bag



Super Red Streak engineers have designed a special bag for the Super which provides, without clogging, the filtering action necessary to vacuum clean oil burners. The bag allows the air to get through without back pressure which often destroys the conventional suction cleaner bag.

The new filter bag for oil burner work is supplied as an extra to the Super Red Streak Furnace cleaner already completely equipped for cleaning of all other types of heating plants. Super chimney cleaning tools are standard equipment.

Write for complete data. Try a Super 5 days free—all risk ours.

NATIONAL SUPER SERVICE COMPANY, INC.
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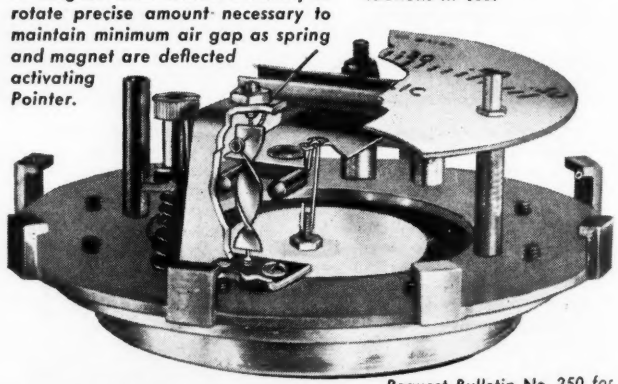
NEW HELICAL-MAGNETIC ACTION!

DWYER
MAGNEHELIC GAGES
for
MEASURING LIGHT AIR PRESSURES

- *Flexible Diaphragm.*
- *Cantilever Spring is deflected by diaphragm movement in proportion to pressure change.*
- *Magnet attached to outboard end of spring.*
- *Helical Pointer Assembly mounted vertically between magnet ends.*
- *Magnet forces helical assembly to rotate precise amount necessary to maintain minimum air gap as spring and magnet are deflected activating Pointer.*

The first really new development in air measurement in the last decade! Friction-less—accurate—inertia-free. No bearing or links to wear. Cannot be damaged by sudden surges. The Magnehelic Gage is not a delicate instrument and requires no special precautions in use.



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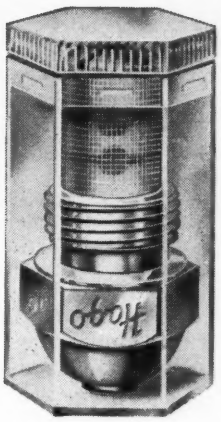

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1281 SPRINGFIELD AVE., IRVINGTON 11, N. J.

Over 1,000,000,000 Gals. Fuel Oil Successfully Treated

Avoid a possible plant shutdown by treating your fuel oil with Alken Certified EVEN-FLO Oil Conditioner.

Alken Certified EVEN-FLO Fuel Oil Conditioner

—Assures the even flow of oil from oil tanks to oil burners

—Reduces soot deposits

—Insures increased efficiency

—Makes your oil stretch.

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Individual Water Treatments—Soot Removers

Certified Alken
EVEN-FLO
FUEL OIL CONDITIONER

WINDSOR VILLAGE
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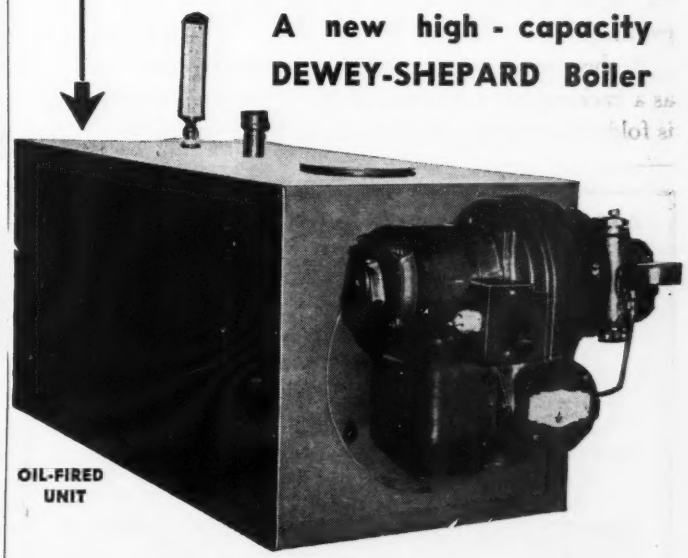
Development of the
L & L BLDG. CORPORATION

SPECIALLY PRICED FOR

Small Homes

A new high - capacity DEWEY-SHEPARD Boiler



OIL-FIRED UNIT

Here's the first real answer to today's small-home heating problem! The new Dewey-Shepard high-capacity horizontal steel boiler is particularly well adapted for baseboard or panel hot-water heating, and priced to make this type of heating available on low-cost housing. Can be fired interchangeably with gun-type oil burner or gas-fired unit (for LP, manufactured, or natural gas). Typical installation in Windsor Village, Indianapolis—see top illustration. Maximum capacity, 70,000 Btu. Boiler proper is cylindrical and can be furnished with or without jacket. Outside jacket dimensions, 18" wide, 18" high, 39" long, with burner equipment projecting. Also available: Gas- or oil-fired boilers and water heaters with capacities from 95,000 to 600,000 Btu.

Get complete specifications and prices from your Wholesaler. Or write direct to:

DEWEY-SHEPARD BOILER CO.
1311 N. CAPITOL AVE., INDIANAPOLIS 2, IND.
FACTORY: PERU, INDIANA

evaporating element holders are stainless steel, with corrosion proof brass and copper connections.

U. S. Radiant Baseboard Eliminates Temporary Heat

RADIANT BASEBOARD, produced by U. S. Radiator Corp., Detroit 26, Mich., is offered to eliminate the need for tempo-

rary heat during construction. As soon as studding has been installed, a 1 x 10 board attached to the bottom of the studs, with the top of the board 10" from the finished floor, permits mounting of the baseboard. The installation is permanently made, except for the valve enclosures which are added just before painting.

A sheet of aluminum foil, furnished as a backing, has a 4" extra width. This is folded over the top to keep debris out of the baseboard unit. Its heavy steel construction prevents damage to the baseboard, and the edge of the mounting board serves as a plaster ground. The illustration shows units completely and permently installed before lathing and plastering.

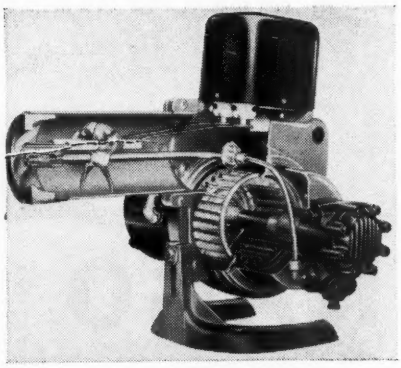
Harbot Threaded Angle Connectors For BX Cable

THREADED-TYPE 90 degree connectors for 3/8" armored electrical cable have been added to the Harbot line by Unimatic Corp., Nutley, N. J., supplementing previous models made for 7/8" knockout openings. The connectors are applied after wiring is completed and consist of three parallel ridges on the lip of each of two parts. These ridges match standard 1/2" I.P.S. female threads in switch boxes and when tightened by two machine screws the ridges of both parts engage the threads for a firm connection.

Underwriters approved, the connectors are made of an aluminum die-cast alloy and require no other tool but a screwdriver for application.

Delta Heating Model A Is Improved Pressure Oilburner

WITH FIRING RATES from 3/4 to 3 gph, model A gun type oilburner, announced



by Delta Htg. Corp., Jackson Heights, N. Y., features a hinged transformer to permit quick accessibility to the nozzle assembly. A new electrode assembly eliminates high tension wire leads to the transformer and electrical connections in rear of the blower housing facilitate servicing.

The burner's blast tube, constructed as a separate part of the blower housing, permits tubes of various lengths. A steel enameled jacket is optional.

4.08 MILES OF OIL-TANK CARS

(539 cars, to be exact) would be needed to carry the oil saved yearly by users of MYKA-DISK Baffles. For ten years

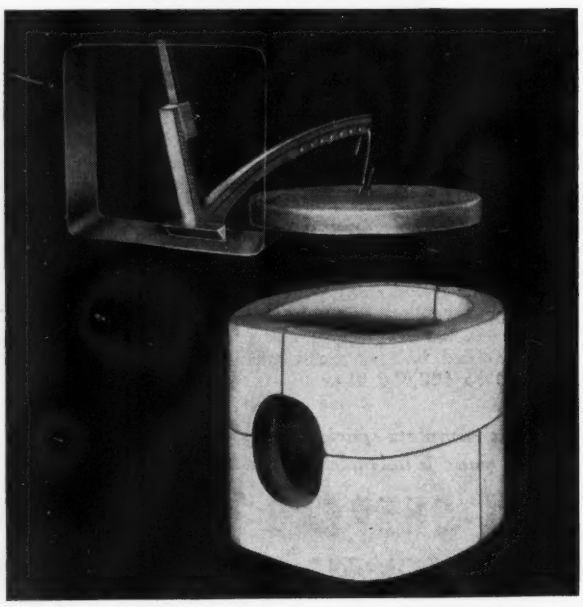
MYKA-DISK

has been standard equipment for Gun-Type Conversion Oil Burners in 40 States. If you want details and prices, write for

4-page BULLETIN No. 15

INSULATION & REFRACTORIES CO.
WILLIAMSON . . . . . N. Y.

"This is MYKA-DISK No. 1 Baffle."



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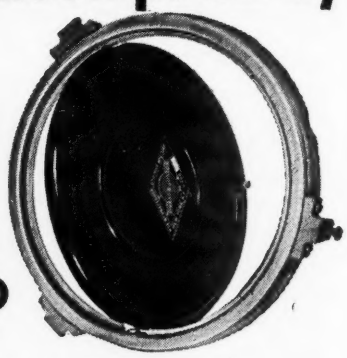
DRAFT-A-JUSTORS

Cut Fuel Consumption by

10% TO 30%



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Stainless steel bearings and weather resistant metals provide long-life service without breakdown due to rust or wear . . . assure *continuous* fuel savings.

Millions now in satisfactory use.

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Industrial sizes from 2' x 2' to 5' x 12'.

PREFERRED UTILITIES MFG. CORP.
1860 Broadway, New York 23, N. Y. Boston Office: 839 Beacon St.

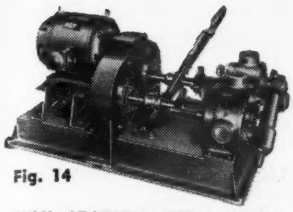


Fig. 14

BULK STATION TWIN UNITS

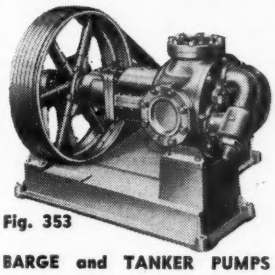
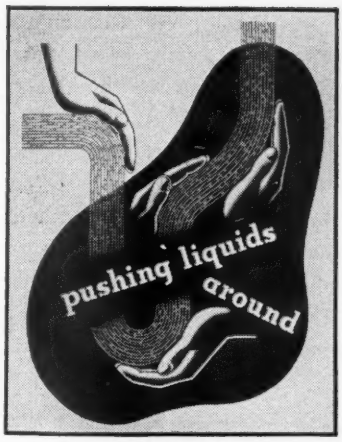


Fig. 353

BARGE and TANKER PUMPS



For smooth, efficient handling of all types of clean liquids, there is a Viking pump built in the size and style to meet your needs.

Viking pumps are especially built for bulk plants, truck delivery, barge and tanker service. Ask for free folders today.

VIKING
AN HONORED NAME IN PUMPING

Bulk plant B400EE

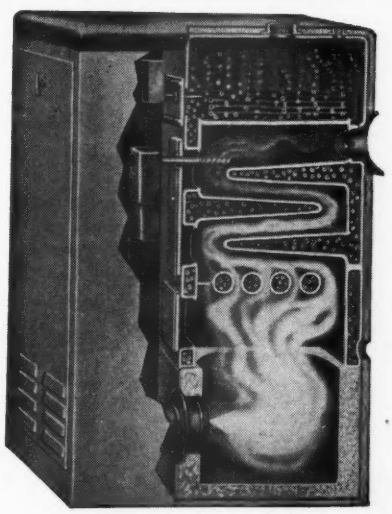
Truck Delivery 1506EE

Barge & Tanker 2900EE

See Our Catalog in SWEETS

Viking PUMP COMPANY
Cedar Falls, Iowa

Steel HEATING UNIT



Licensed under U. S. Pat.

Write for full particulars about Exclusive Franchise for your territory on our full line of MAGIC-HEAT Boilers and Boiler-Burner Units.

Magic-HEAT

Product of

MARIETTA METAL PRODUCTS CORPORATION
MARIETTA, PENNA.

Easier to BUY
Easier to SELL
Easier to INSTALL

ALDRICH

Compact BOILER-BURNER UNITS

Here are compact, complete, *packaged* boiler-burner units in sizes for home and industry, for low-pressure steam and hot water heating and/or hot water supply.

They're economical to buy and use; easy to install in minimum space with a minimum of skilled labor. Six sizes in the Aldrich Series "B" Heat-Pak are rated at 118,000 to 808,000 BTU an hour... 6 sizes for hot water supply with ranges of 125 to 850 GPH at 100 degrees rise.

All Aldrich boilers are available for either oil or gas firing with burners readily interchangeable.

If you buy, sell, specify, or install boiler-burners, write for information about Aldrich.

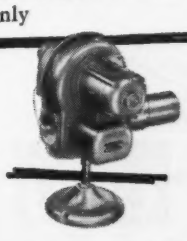
The Popular New

ALDRICH *Bantam*

FOR MODERN LOW-COST HOMES

This outstanding boiler-burner unit, designed especially for the modern 4 to 5 room home, stands only 45" high, occupies 20" x 33" of floor space. Rated at 100,000 BTU, it can be adapted to steam, hot water, or radiant heating systems, and provides domestic hot water in excess of FHA requirements. Models also available for hot water supply only

---



ALDRICH
OIL BURNERS

Skillfully engineered, precision-built for economy and trouble-free service. No radio interference from motors and transformers. Burners flange or base mounted. Model CX: .75 to 2 GPH. Model SAX (shown) with interchangeable draft tubes and air cones: .75 to 4.50 GPH. Model BX: 4 to 8.50 GPH. Model JU Heavy Duty: 7 to 19 GPH.

ALDRICH
COMPANY

A subsidiary of Breeze Corporations, Inc.

ALDRICH HEAT-PAK PRODUCTS

103 E. Williams Street
Wyoming, Ill.

ANOTHER BREEZE MARK PRODUCT

Manufacturers Activities

Outline 1950 Plans for G-E Distributor Organization

MORE THAN 350 distributors of the Air Conditioning Dept., General Electric Co., Bloomfield, N. J. met in New York on December 12 and witnessed a preview of plans, products and sales programs for 1950. Harold F. Smiddy, vice president of the company and general manager of the department, foresaw a 25% increase in the sales of air conditioning and automatic heating equipment by application of aggressive merchandising plans. Improved products, greater public acceptance, plans for better selling and revived promotion of air conditioners by electric utilities were the bases on which Mr. Smiddy made his prediction. He announced that G-E's position will be enhanced by a four-point program covering development of packaged equipment and merchandise, simplified product lines and models, promoting year-round markets and the largest national advertising program ever undertaken on behalf of the department.

The advertising program, to feature 24 full and half-page advertisements in *The Saturday Evening Post* will employ the theme, "It's the Heart that Counts," emphasizing the benefits of G-E basic research and engineering contributions. R. S. Peare, vice president in charge of advertising and D. C. Prince, vice president and general manager of the general engineering and consulting laboratory addressed the distributors, stressing this theme.

Top: *During plant tour, distributor group inspects part of warm air furnace test.*

Bottom: *Blown-up illustrations of national advertisements to appear in one publication during the year fill the entire stage.*

At the conclusion of the New York session, held at the 48th Street Theatre, the distributors visited the factory at Bloomfield, N. J. for a tour of the manufacturing and administrative headquarters of the department. The day's activities were concluded with a dinner meeting held at the Hotel Suburban in East Orange, N. J. R. W. Johnson, vice president in charge of affiliated manufacturing companies was principal speaker.

"Back to Davenport Selling" was the theme of another conference sponsored by the automatic heating division at Bloomfield, N. J. for all of its field heating representatives.

Char-Gale Installs Reduction Rolling Mill At Minneapolis

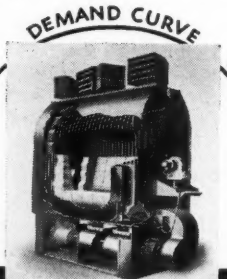
INSTALLATION of a large capacity reduction rolling mill in its Minneapolis plant has been announced by Char-Gale Mfg. Co., Minneapolis, Minn. and Omaha, Neb. This addition to the company's

LEE

PIONEERS OF

DIRECT FIRED WARM AIR HEATERS

Heat Where Needed — FOLLOW THE HEAT — DEMAND CURVE OF YOUR BUILDING — Heat When Needed



COUNTER-FLOW

Easy to Install — Easy to Maintain

- Completely automatic with any fuel
- 80—85% efficient
- No licensed fireman
- Floor, wall or roof mounted
- Instant pick-up from cold start
- Easy conversion to any fuel
- Ventilation in summer
- Capacities of 300,000 Btu to 8,000,000 Btu in single unit

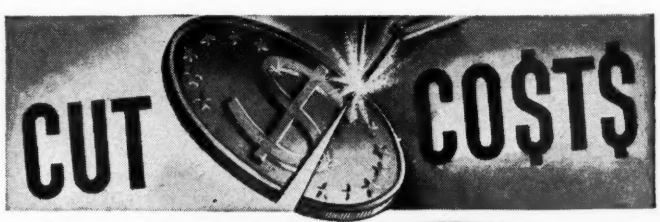
Large Central Heaters and Process Heaters Also Available.

Write for Bulletin No. FO-10

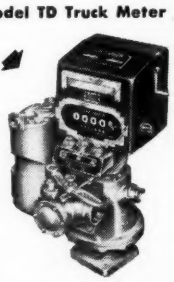
LEE ENGINEERING COMPANY

95 RIVER STREET, HOBOKEN, NEW JERSEY

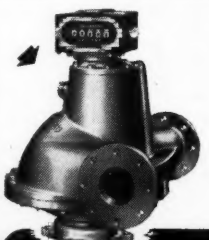
(Formerly Youngstown, Ohio)



Model TD Truck Meter



Model LJ — 4" Line Meter



GRANCO fast flow meters

speed truck or bulk plant delivery

GRANCO Meters cut overhead, enable your tank trucks to make more "dumps" per day. How? Because they have . . .

- ★ faster flow — extra large metering chamber allows for greater through-put to each revolution of rotor.
- ★ lower head loss — smooth, pivot action of exclusive GRANCO "floating" rotor offers minimum resistance to flow.
- ★ sustained accuracy — over wide range of flow.
- ★ longer trouble-free life — slower mechanical speeds, fewer moving parts mean less wear . . . long, continuous service.
- ★ Quick, accurate calibration—only rotary meter with easy, positive adjustment.

BUY GRANCO METERS — YOU'LL BE MONEY AHEAD!

Write today for Free Bulletins

GRANBERG CORPORATION Granco

OAKLAND 8, CALIFORNIA ★ Makers of Rotary Positive Displacement Pumps and Meters for all Petroleum Products

Sales and Service at your service throughout the nation

When you sell...

Gulf Fuel Oil...

You're selling...

clean heat, comfort!

Gulf Oil Corporation • Gulf Refining Company

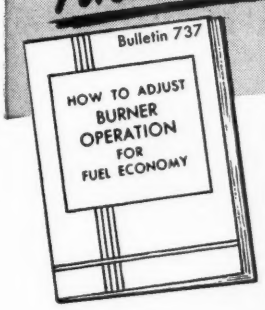
DIVISION SALES OFFICES:

Boston • New York • Philadelphia

Pittsburgh • Atlanta • Toledo

GULF

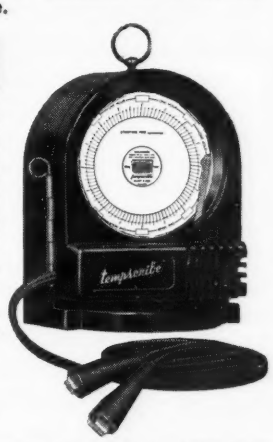
Fuel-Saving SERVICE Simplified



Fuel economy and heating comfort depend on proper fire size more than on any other single factor. Correct adjustment of burner on-and-off cycling and gph-rate can be made quickly and dependably by an amazingly simple test which requires only the recorder shown below and takes less than 20 minutes of a service man's time.

FREE FACTS

The simple procedure of the heat test for adjusting burner operation for minimum fuel consumption and maximum heating comfort is clearly and completely described in the bulletin above. The bulletin also explains how this heat test dramatically demonstrates the need for replacement of an obsolete installation thus opening the way for profitable replacement business. Write for your free copy today.



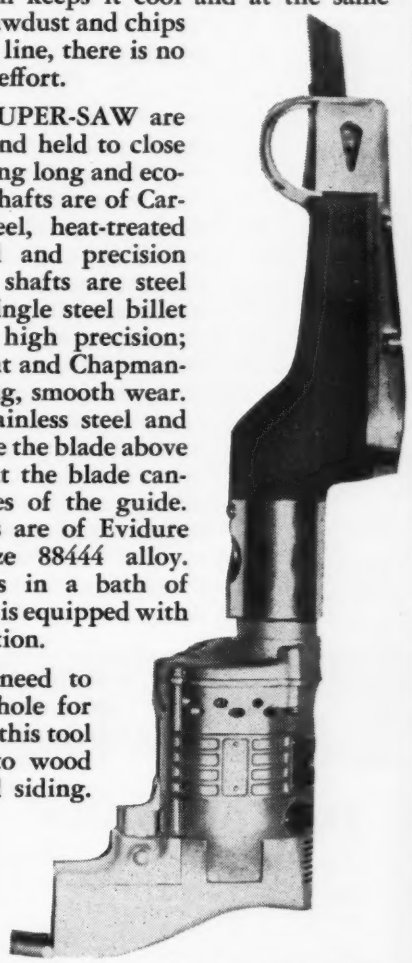
MEMBER OHI OIL-HEAT INSTITUTE OF AMERICA

BACHARACH Industrial Instrument Company

7000 Bennett Street - Pittsburgh 8, Pa.

SUPER-SAW AIR COOLED PATS. PEND. Will Cut Your "Roughing In" Costs

75% because it does a job quicker and better. SUPER-SAW is faster in cutting operations because its frictionless bearings allow more power from the drill to be delivered to the cutting blade. Also because it has no torque or spin, has a blowing attachment which keeps it cool and at the same time blows the sawdust and chips from the cutting line, there is no wasted time or effort.



All parts of SUPER-SAW are precision built and held to close tolerances, assuring long and economical wear. Shafts are of Carpenter Solar Steel, heat-treated to 50 Rockwell and precision ground. Crank shafts are steel milled from a single steel billet and ground to high precision; gears are steel cut and Chapmanized—giving long, smooth wear. Saw guide is stainless steel and designed to guide the blade above the teeth, so that the blade cannot cut the sides of the guide. Connecting rods are of Evidure phosphor bronze 88444 alloy. Mechanism runs in a bath of non-fluid oil and is equipped with one-shot lubrication.

There is no need to drill a starting hole for SUPER-SAW as this tool cuts directly into wood floors, walls and siding. Openings for warm air heating can be "roughed in" in 12 minutes; holes for setting toilet bowls in 5 minutes. Neither do you have to worry about hitting nails. SUPER-SAW special shatter-proof, flexible blades, which are trifling in cost, cut right through them without injury to the saw's teeth.

Practically all of the better dealers handle SUPER-SAW, but we'll be glad to place you in touch with one near to you, if you'll write or wire us.

See SUPER-SAW in Action at —

Booth #11—
National Roofing Contractors' Association, Chicago, Ill.

•

Booth #829—
Southwest Air Conditioning Exposition, Dallas, Texas.

•

Booth #207—
Plant Maintenance Show, Cleveland, Ohio.

•

RCS Tool Sales Corporation

Chalstrom Bldg. - - - Joliet, Ill.

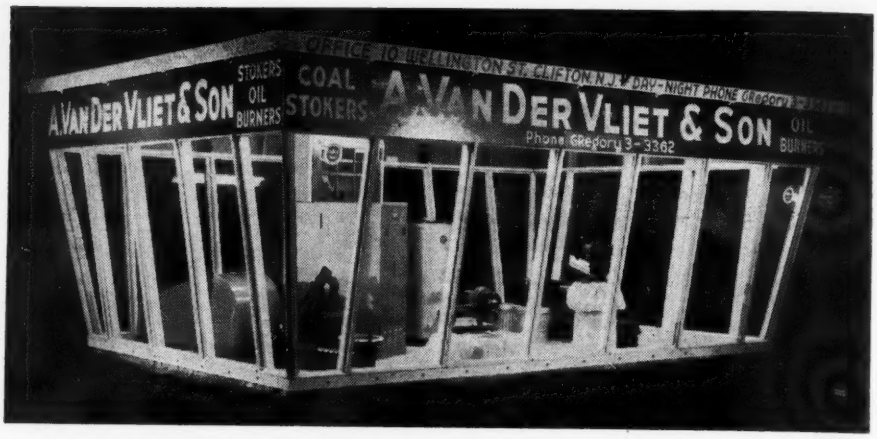
facilities already has speeded up the output of its aluminum products.

The installation is in keeping with the policy of the company, makers of a complete line including registers, humidifiers, galvanized and aluminum sheets and coils, to undertake all possible steps to speed up and improve services.

Conco Names Eleven Electric Radiator Outlets

ELEVEN firms and individuals have been named by Conco Engineering Works, Mendota, Ill., to handle its electric portable radiator. The light-weight radiator weighs 28½ lbs., starts radiating heat as soon as it is plugged in and reaches full heat within five minutes.

The representatives are: Babcock & Preuss, New York City; C. J. Brassell, Tampa, Fla.; Cusack & Harman, Seattle, Wash.; Roy H. Case, Seattle, Wash.; Wayne Davis, Muncie, Ind.; Frank Lenihan, Mendota, Ill.; Fred McGee, Chattanooga, Tenn.; Mercury Sales Co., Syracuse, N. Y.; E. P. Murr, Denver, Colo.; Howard Waff, Norfolk, Va.; Hardware Sales Corp., Cleveland.



Highway display room *maintained by A. Van Der Vliet & Son, Clifton, N. J., stoker, oilburner, coal and fueloil outlet. The building is situated on Highway No. 6, a much-traveled route which passes through Clifton, and has evoked a considerable amount of comment and publicity for the firm. Displayed in the "house," which is constructed of crystal glass supported by 2 x 6 studding, are coal stokers, oilburners, boilers and hot water heaters. At night, when lighted as shown in the illustration, the display is seen at best advantage.*

Manufacturer's Warehouse Established in New Jersey

ESTABLISHMENT in the south New Jersey area of Manufacturer's Warehouse, Inc., Woodbury, N. J., has been announced, available for the warehousing of plumbing and heating supplies and equipment. The firm occupies a four-story building, embracing 110,000 sq. ft. of floor space, serviced by two elevators, railroad siding, watchmen and sprinkler system.

Three plans are offered. Storage space may be rented by manufacturers for stocking merchandise and subject to release only by the manufacturer or sub-

Blower Wheels

Do You Know...

5" 5"to 12" 12"

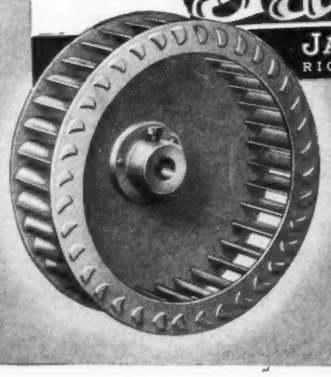
Janette Builds 63 different sizes of single inlet and 22 sizes of double inlet wheels, with air capacities of from 67 to 4620 c.f.m. . . . A special patented construction is used which results in an exceptionally rugged wheel that will last indefinitely.

For Over 20 Years Janette Blower Wheels have given complete satisfaction to internationally known manufacturers of air conditioning, ventilating and drying apparatus, superchargers, dust collectors, coal stokers, oil burners, air cooled engines and fire detection equipment. For Smooth, Quiet, Dependable Performance SPECIFY JANETTE BLOWER WHEELS

Ask For Bulletin 24-1

Janette

JAN-AIR, INC. Manufacturers
RICHMOND - ILLINOIS - U.S.A.

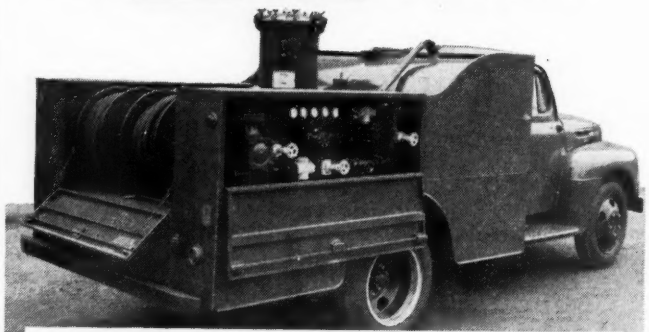


No Other Wheel Like It

Patented Construction

Built For Hard Service

Pumps and cleans fuel tanks AT 90 GALLONS A MINUTE!



This Brownie Filtering and pump-out unit mounts on a 1½ ton truck. It has 500 gallon tank, water separating unit, filtering unit and twin hose reels. Fuel tanks can be flushed, cleaned, and the contents filtered and returned in a matter of minutes. Gauges show when filters and strainers need to be cleaned or replaced. Brownie's filtering and pump-out job will solve your emergency and cold weather cleaning problems and reduce to a minimum loss of tank usage.

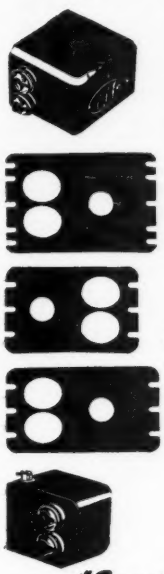
WRITE TODAY FOR FULL DETAILS AND SPECIFICATIONS

BROWN STEEL TANK COMPANY
2901 Fourth Street S.E. • Minneapolis 14, Minn.
Eastern Distributor: EASTERN WELDED PRODUCTS, INC. 34-15 Bradley Ave., Long Island City 1, New York

Profit Guaranteed!

Yes!

If our universal transformer package doesn't make money for you by saving valuable time—we'll take it back and issue full credit.



Yes!

Our universal transformer package fits 80% or more of all burners.

You get

PACKED IN HANDY CARTON

2-Webster Transformers
3-Interchangeable Base Plates
2-Rajah Base Studs
2-Bus Bar Clips

Priced Reasonably

with money back guarantee

Write Today

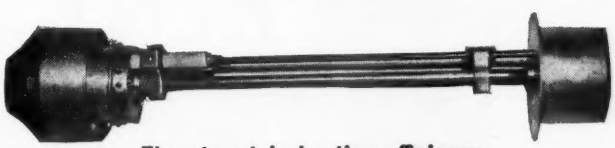
"Everything from A to Z for the Oil Burner"

R. E. MICHEL COMPANY
1011-1017 GREENMOUNT AVENUE
BALTIMORE 2, MARYLAND

Now Available!

NEW COMBUSTION HEAD

DESIGNED AND PATENTED BY THE SHELL DEVELOPMENT CO.



The utmost in heating efficiency

Two important advantages for manufacturers whose pressure type burners are equipped with the new SHELL DESIGN COMBUSTION HEAD—

1 Economy of fuel. Field tests indicate 20% and more oil saving. A CO_2 as high as 15% is obtainable with no smoke, even when using 100% catalytic fuel oil. The oil situation makes such economy a positive necessity, and the CUSTOMER SATISFACTION produced is a real SALES PROMOTER.

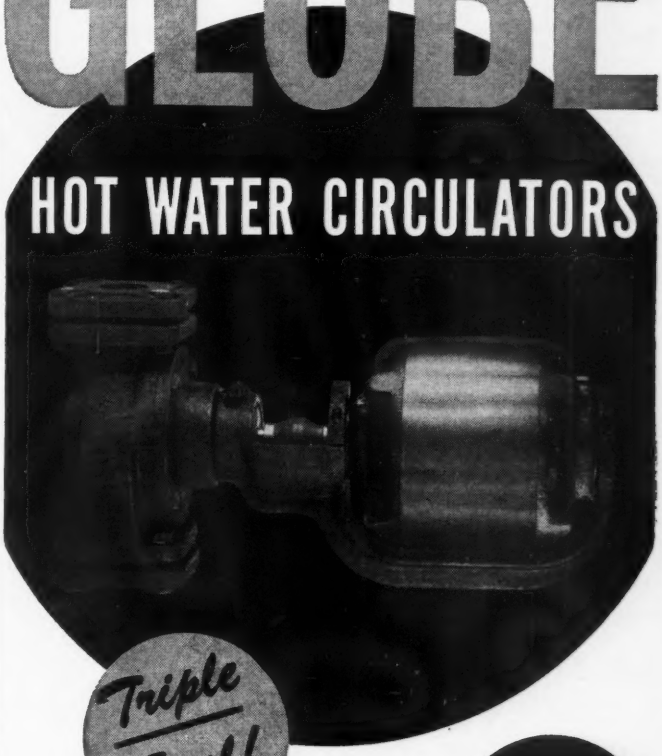
WE SOLICIT INQUIRIES FROM MANUFACTURERS OF OIL BURNERS

2 Replacement of obsolete, inefficient burners by burners equipped with the NEW SHELL DESIGNED COMBUSTION HEAD will be quickly paid for out of oil savings!

Manufactured by
MODERN DIE AND MACHINE COMPANY
166 PLEASANT STREET, BOSTON 25, MASS.
Under license from the Shell Development Company

GLOBE

HOT WATER CIRCULATORS



Triple Seal!

Quiet!

★ Hardened Steel Shaft, precision ground
★ Water Seal—Hardened stainless steel face to carbon
★ Extra-long, OILITE, oil-impregnated Bronze Bearings
★ Flexible Neoprene Coupling
★ 1/6 hp Westinghouse or equivalent Motor

These quality components, together with GLOBE precision engineering, make the quiet, rugged GLOBE Hot Water Circulator the most outstanding circulator buy in its class.

Tested!

Guaranteed

Manufacturers of Low Water Cut-Offs and Controls for a Quarter Century

Send for Catalog

GLOBE CONTROLS CO.
81 WARREN STREET, NEWARK 2, N. J.
EXCLUSIVE TERRITORIES AVAILABLE

ject to release by manufacturers' agents or other authorized persons. The third plan would cover merchandise consigned to Manufacturer's Warehouse and subject to a pre-arranged plan of payment.

Cirillo Brothers Adding Bulk Storage in Bronx

CONSTRUCTION WORK for a 2.5 million bulk terminal in the Bronx has been started by Cirillo Bros. Oil Co., Inc., Brooklyn 18, N. Y. The new plant, located at Zerega Ave. and Westchester Creek, will be the third owned by the company and is expected to begin operation during February, 1950.

The installation will sell kerosene, light and heavy oils at wholesale, will be equipped with twelve loading racks to load at 375 to 400 gpm. Additional plans are being drawn and pipe facilities installed to add 5 million barrels capacity to the plant when necessary.

Allied Oil Opens New Philadelphia Bulk Plant

ALLIED OIL CO., INC., Philadelphia, has opened an uptown bulk plant at 2700 Roberts Ave., augmenting its water terminal maintained at 1630 South 51st St. The bulk plant will handle, in wholesale lots, fueloil, gasoline, kerosene and solvents.

Service facilities are described as having been designed to avoid delivery delays. Loading racks are equipped with Brodie meters and piped to dispense 300 gpm.

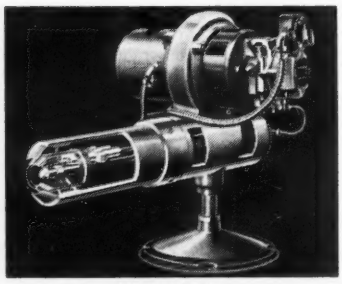
Dole Merchandiser Displays Twelve Air and Vacuum Valves

A "MERCHANDISER" for point-of-sale use is being offered to dealers by Dole Valve Co., Chicago, Ill., as a practical aid to selling air and vacuum valves for one-pipe steam radiators. The counter case displays a representative selection of twelve Dole air and vacuum valves, protected by a readily removable top glass window.

A recessed space is provided for each of the valves with identifying caption that includes a brief suggestion of applications. The "Merchandisers" are available through wholesalers, the only charge being the cost of the twelve valves that they contain. As sales are made, the dealer can replace the valves from his bulk stock.

Oil-O-Matic Selling Tools And Winter Sales Program

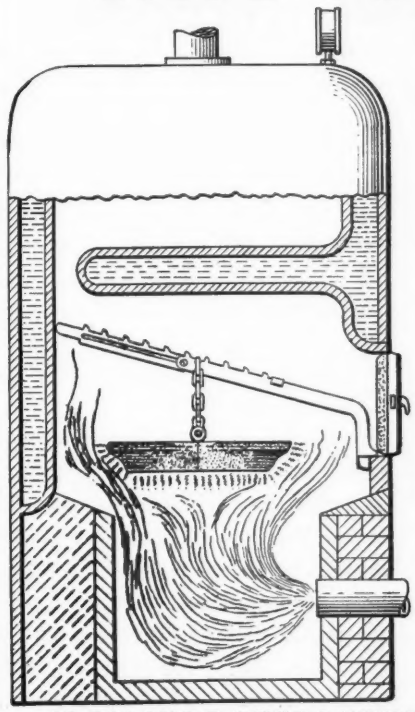
TWO SALES PROMOTION TOOLS, produced for its field men and dealer organization have been announced by the Williams Oil-O-Matic Div., Eureka Williams Corp., Bloomington, Ill. A zipper carrying case, made of heavy dark green canvas with a felt-lined base, permits the salesman to carry the model Fifty-Ten low pressure burner right into the prospect's home for a "close-up." A bright red velveteen 36" square display cloth

NOW AUTOMATIC HEAT plus ECONOMY
In Autocrat Oil Burners
This patented combustion head has dealer and consumer acceptance. When you show your customer savings year after year, he listens.

Model HB1-S
AUTOCRAT
Manufactured by
THE CHANDLER CO.
CEDAR RAPIDS, IOWA

Quality stands the test!
IT PAYS TO BUY A
KENT
Double Suction
FURNACE CLEANER

• Dust bag is inside the can—less chance of tearing
• Separates into 2 parts—easy to carry
• Low center of gravity—prevents tipping
The sturdy, reliable KENT gives you long life with fewer breakdowns . . . you can depend on KENT quality, design, and workmanship to do the job when you want it done. Compare KENT before you buy any Furnace Cleaner!
CLEAN WITH KENT EQUIPMENT
THE KENT COMPANY • 434 CANAL STREET • ROME, NEW YORK

IRON-HIDE BAFFLES & SUPPORTS SAVE FUEL!



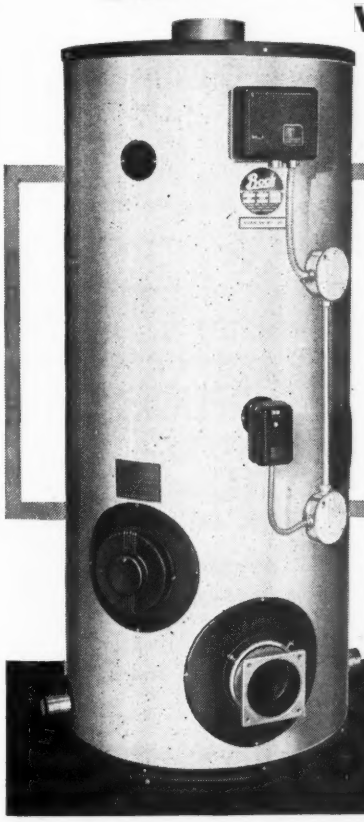
AND COST SO LITTLE

DEALERS
WRITE FOR SPECIAL INTRODUCTORY OFFER

JOBBERS
WRITE FOR INFORMATION AND DISCOUNTS ON THE COMPLETE IRON-HIDE LINE OF COMBUSTION CHAMBERS & BAFFLES

IRON-HIDE REFRACTORIES, INC.
DOCK ST., MATAWAN, N. J.

THE
ACCEPTED
WATER HEATER



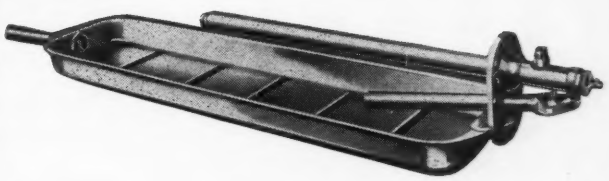
Must have a gun type burner to handle todays catalytic fuel.

Bock water heaters come in three popular sizes including a low cost 30 gallon model for residences. They are supplied with or without the oil burner. Come with electric wiring in place and with a removable combustion chamber.

★ *Reliability*
★ *Satisfaction*
★ *Repeat Sales*

BOCK
CORPORATION
MADISON, WISCONSIN

NEW!
IMPROVED
1950 MODEL
THERMO-DRIP
AUTOMATIC
HUMIDIFIER



● **ADAPTABLE TO ALL WARM AIR FURNACES**

Thermo-Drip Humidifiers may be installed either above bonnet or with pan resting on bonnet—thus assuring easy installation plus continuous maximum efficiency.

● **JUST ONE KIT—NOTHING EXTRA TO BUY**

All accessories of Thermo-Drip Automatic Drip Humidifiers are included in one kit. They attach easily to all types of warm air furnaces.

Make Thermo-Drip Humidifiers a part of regular furnace equipment, and you will step up sales. Value-wise customers instantly recognize the superior performance features of Thermo-Drip. They know the advantage of the *bi-metal, fool-proof thermostat*—the *fingertip control*, the *long-lasting stainless steel pans.*

COMPARE THESE AMAZING UNBEATABLE PERFORMANCE FEATURES

- New improved air-tight valve. Has positive seating action.
- Fingertip adjustment with lock nut . . . that assures hairline regulation.
- No electrolytic action.
- No clogging.
- Easier to clean and service.
- Less parts.
- No stagnant pool of water left in pan.
- Immediate vaporization.
- Easy installation.

WRITE TODAY FOR *FREE* LITERATURE

Automatic Humidifier Co.
CEDAR FALLS, IOWA

protects the floor or table where the burner is being displayed.

A Jewel Case Nozzle Kit also assists in the sales presentation for the Fifty-Ten by displaying in a simulated pigskin case a highly polished brass Oil-O-Matic low pressure nozzle and a high pressure nozzle, both held in place on a red velvet pad by elastic loops. "There is a big difference in oilburners," is the caption on the lining to point out the large opening of the low pressure nozzle in comparison to that of the high pressure nozzle.

A November meeting at the Bloomington factory served to introduce a "Star" winter sales program for Fifty-Ten burners and units. It centers on five main points for aggressive development of prospects and a plan for converting them into customers.

First point in the plan revolves around the solicitation of new prospects among friends or satisfied users of Oil-O-Matic equipment. The second point employs the company's Fuel Conservation Engineering program, developed during the winter of 1947-48, and shows the salesmen the use of surveys of heating equipment and heating practices, complete with testing equipment and survey forms.

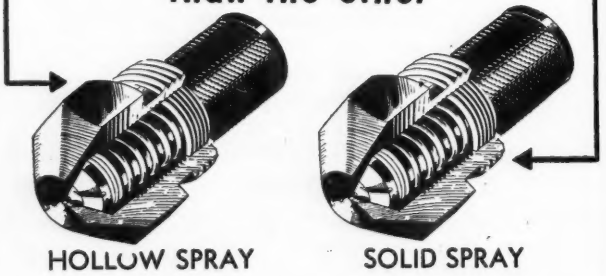
Top: *Zipper carrying case.*
Bottom: *Nozzle kit.*

This leads logically into the next point of the program, the development of replacement sales, wherein each dealer is provided with an accurate breakdown of this market and a telephone-mail-personal call campaign. A return to pre-war selling techniques through personal canvassing is stressed as the next point, with the fifth point telling how to exploit neighborhood news in securing new prospects. An installation sign, to emphasize this point, is available for placement on a dealer's truck while making an installation.

To tie together the entire Star program and provide a coordinated factory-dealer follow-up, "Name a Day" promotion has been inaugurated. Dealer salesmen list thirty prospect names on a special form, send it to the factory where a series of mailings is begun to each prospect to retain his interest between personal follow-up calls by the salesman.

APTHORP *True Alignment* NOZZLES

BOTH ARE PERFECT
but one may be *BETTER*
for a *PARTICULAR BURNER*
than the other



HOLLOW SPRAY SOLID SPRAY

Every burner has a certain air pattern that is governed by the design of its particular head. Either an Apthorp Hollow Spray or Solid Spray Nozzle will mate best with this air pattern. By use of the right type, CO^2 will increase from 2% to 4%.

STOCKED BY LEADING DISTRIBUTORS EVERYWHERE

BOSMACO

WRITE FOR COMPLETE NOZZLE BULLETIN

BOSTON MACHINE WORKS COMPANY
Oil Heating Supplies Division, Manufacturers, Lynn, Mass.

Switch to JET

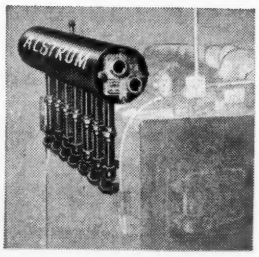
JET Oil Burners Cut Costs
Hotter • Faster Heat
Eliminates Service

JET Combustion Heads Improve:
(1) Oil
(2) Burner
(3) Boiler

Get the facts on this great advancement

AUTOMX UTILITIES
449 Senator Street Brooklyn 20, N. Y.

ALSTROM DEPENDABLE
TANKLESS HEATERS
The VACUUMATIC (ILLUSTRATED)
FOR ALL CAST IRON BOILERS



Submerged Coils
For All Steel Boilers

The Counterflow
For Small Homes

Catalogue on Request

The ALSTROM CORPORATION
4184 Park Ave., New York 57, N. Y.

Use "CRESCENT PARTS" Service

SERVING THE MIDDLE WEST

STOKER PARTS • OIL BURNER PARTS

FEED SCREWS
TUYERES - CONTROLS
TRANSMISSION PARTS
G. E. FURNACE CLEANERS
INSTALLATION MATERIALS

Authorized Fuel Unit Service Station

FUEL UNITS
TRANSFORMERS
ELECTRODES
COMBUSTION CHAMBERS
FILTERS - TUBING
FITTINGS - NOZZLES
CONTROLS - OIL TANKS

SEND US YOUR ORDERS OR INQUIRIES!

CRESCENT PARTS AND EQUIPMENT CO., Inc.

WHOLESALE DISTRIBUTORS

825-831 S. Boyle Avenue St. Louis, Missouri

Stoker & Oil Burner Control

REPAIR
EXCHANGE
SERVICE
on
Minneapolis-Honeywell
Perfex
Penn

Honeywell Names Field Sales Mgr.; Makes Other Promotions

NAMING of Fred Kaiser field sales manager and promotions of four branch and regional managers have been announced by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. Mr. Kaiser, midwest regional manager since 1942, has been named to a new position, created to coordinate the increasing activities of the field organization's 77 branch and regional offices in the United States. He has been with the company since 1926.

Clarence L. Peterson, who has been Pacific regional manager with offices in San Francisco, has succeeded Mr. Kaiser in the midwest area and, in turn, will be succeeded by Gavin S. Younkin. He has been Los Angeles branch manager since 1943, will continue to make his headquarters there and direct the region from that office. Mr. Younkin joined Brown Instrument in 1925 and worked in several branch offices before transferring to Los Angeles in 1942.

Reginald C. Cushing has been promoted to the position of branch manager of the San Francisco office. He has been with the company since 1935 and transferred a year later to the San Francisco sales staff. In 1946 he became regional air conditioning sales manager.

Top: *Kaiser, left; Peterson, right.*
Bottom: *Younkin, left; Cushing, right.*

Blake Heads Winkler Sales; Kosch, Coryell Reassigned

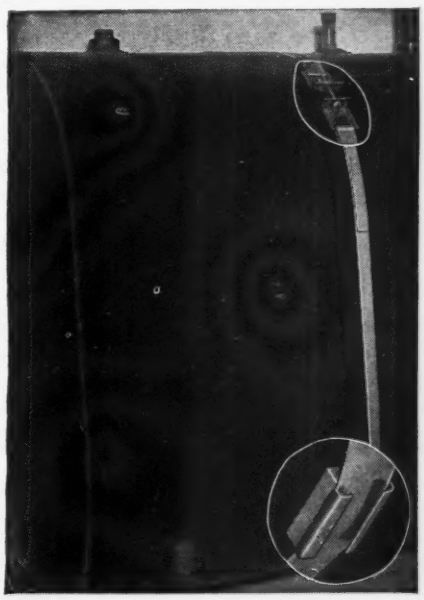
THE RESIGNATION of J. O. Williams as national sales supervisor, U. S. Machine Corp., Lebanon, Ind., has resulted in shifts of Winkler sales personnel. Walter E. Blake, Meriden, Conn., has been named to succeed Mr. Williams and in turn has been replaced by Philip C. Kosch, Manchester, N. H., as regional supervisor for the eastern and New Eng-

Blake Kosch

USE

***TANKIT**

An emergency kit to stop a leak in an inside fuel oil tank instantly. IS TO BE USED FOR TEMPORARY RELIEF until such time as the fuel is consumed and the tank replaced. TANKIT is then to be put back in container for future use.



*Reg. *Pat. Pend.

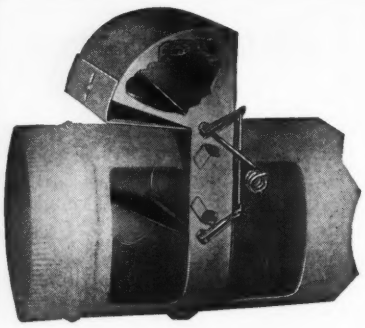
NEW LOW PRICES!

1-2 $3.00
3-11 $2.75
12 or more $2.50

WRITE FOR YOUR NEAREST DISTRIBUTOR

TANKIT CO.

137 Cedarhurst Avenue Cedarhurst, N. Y.

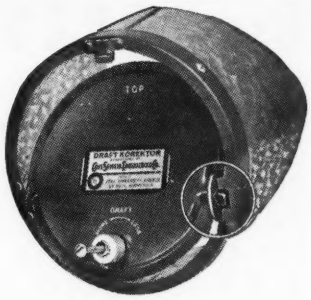


COLE DRAFT GOVERNOR

Reflection of quality is shown in every detail in this popular control. Skillfully designed to give perfect control with dependable noiseless operation. Wide range of sizes.

DRAFT KOREKTOR

Be prepared to offer the best with this control. We invite your comparison in performance, ease of installation, range of sizes, fuel saving ability and price.



WRITE TODAY FOR FULL DETAILS

COLE-SEWELL Engineering Co.

2288 UNIVERSITY AVE. ST. PAUL 4, MINN.

land territories. Glynn L. Coryell, chief field engineer, takes over Mr. Kosch's duties as district sales manager in the Boston area.

"Ollie" Williams has devoted more than thirty years to selling and supervising sales, a good portion of that time spent in travelling. To avoid this, he has asked to be relieved of his sales head duties. Arrangements are being made to assign him a local territory as a district sales manager to permit him to continue to reside in Lebanon.

Mr. Blake, with the Winkler organization for almost two years, has performed successfully as regional supervisor, working closely with district managers and accounts. He is widely experienced in the heating industry, his associations including positions with both oilburner dealer and manufacturing organizations.

Mr. Kosch, who has been with the company for more than ten years, for a number of years covered the New England states, but since the entrance of the company into the oilburner business, has concentrated largely in the Boston area, where he plans to move shortly.

Mr. Coryell for more than eleven years has worked with district managers and their outlets on field engineering problems and enjoys a background of experience with heating firms. He is a member of the ASHVE, a registered professional engineer in Indiana and long has been active in church and fraternal affairs. He, too, plans to move to Boston.

Cleans Chimneys Permanently

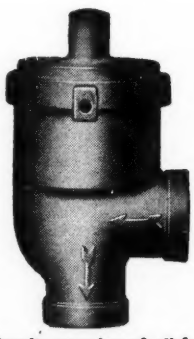
Stops down draft—prevents furnace explosions. Satisfaction guaranteed. This copper pot (with character) mailable.

For FREE BOOKLET and Dealer Proposition Write

WIGWAM FLUE TOP CO.

ABINGTON MASSACHUSETTS

SAVES THREE KINDS OF FUEL



Permits pumping of oil but closes to prevent syphoning in case of suction line break.

PREFERRED Anti-Syphon Valves

APPROVED BY

UNDERWRITERS' LABORATORIES, INC.

For Oils Up To No. 5—Valves C5 and C10 are available in ⅜" and ½" sizes.

For Oils Up To and Including No. 5—Valves B5 and B10 are available in ¾" and 1" sizes. (1" size is built up from ¾" size with fittings.)

PR-173

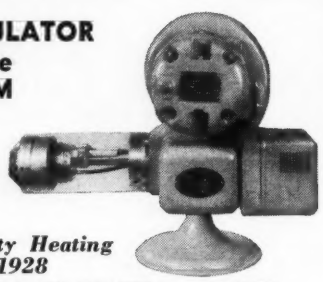
PREFERRED UTILITIES MFG. CORP.

1860 BROADWAY, NEW YORK 23, N. Y.

THE WEATHERALL ELECTRONIC TURBULATOR

Now You Can Realize FUEL SAVINGS FROM 14 TO 36%

A new dependable automatic fuel oil burner. It reduces fuel consumption — Insures clean combustion — Provides quiet burner operation.



Manufacturers of Quality Heating Equipment Since 1928

OIL BURNERS — WARM AIR HEATERS — BOILER BURNER UNITS

Exclusive Franchise Territories Available

WEATHERALL ENGINEERS, INC.

387 CHARLES STREET

PROVIDENCE 4, RHODE ISLAND

E-Z Extra PROFIT

Soot Destroyer

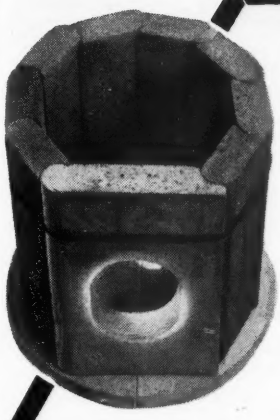
(For fuel oil soot only.) Keep a supply on every Service Truck. Sell cleaning jobs. Use *E-Z*. One application does a thorough soot cleaning job. Saves time. Pays extra profit. Sell one-lb. cans to customers. If your Distributor cannot supply you, order direct.

No. 1 Pkg. approx. 1 lb. . . . List $1.00 ea.
No. 5 Pkg. approx. 5 lbs. . . List $4.50 ea.

Special discount to Distributors on quantities.

HEALY-RUFF COMPANY

797 Hampden Avenue • St. Paul 4, Minnesota



For quieter, faster-heating operation, specify

"SILENT-FIRE" Combustion Chambers

"SILENT-FIRE" Combustion Chambers are made of sound-absorbent acoustical brick which helps eliminate combustion noises. This strong, hi-temperature insulating brick is fast-heating—assures oil economy.

Interlocking style—requires no cementing. Can readily be sawed or notched to fit around grate lugs. Sizes for firing rates up to 3.00 GPH. Packaged in a single, convenient carton.

Write for full information today!

THE NOCK FIRE BRICK COMPANY

1243 East 55th St. **Cleveland 14, Ohio**

Two Named Vice Presidents Of Penn Electric Switch Co.

R. S. PENN and E. B. Maire have been elected vice-presidents, Penn Electric Switch Co., Goshen, Ind. Mr. Penn, active with the company since 1937, has served as manager of several of the company's district offices. He returned to the main office after three years' service in the U. S. Naval Reserve and became manager of the special products division.

Mr. Maire joined Penn in 1934 and for several years managed the Chicago district office. He now returns to the company after three-and-one-half years in other phases of the control industry and will make his headquarters at Goshen.

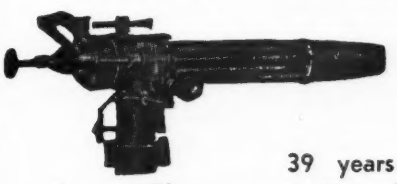
Timken Contest Winners Enjoy Virginia Vacation

WINNERS in the annual Sellabration contest, sponsored by the Timken Silent Automatic Div., Timken-Detroit Axle Co., Jackson, Mich., recently enjoyed six days of fun and relaxation at the Cavalier Hotel, Virginia Beach, Va. T. A. Crawford, general manager of the Division, described the vacation as a complete success for the 250 dealers, salesmen and wives who made the trip.

A feature of the company's sales activities for twenty years, the contest awards vacations for outstanding salesmanship during the Sellabration period, which this year extended from April 1 to October 31. This year's program in-

SIMPLEX HEAVY OIL BURNERS

SPECIALLY DESIGNED FOR



- DEALER INSTALLATION
- DEALER PROFIT

39 years successful experience. Close co-operation. Write for details.

SIMPLEX OIL HEATING CORP.
SINCE 1910
11 Park Place • New York 7, N. Y.

THE HANDY PACKAGE THAT SERVICEMEN PREFER

CLEAN SWEEP SOOT REMOVER

Speeds up Service Calls
and
Builds Customer Goodwill

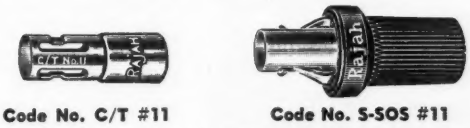
For Coal, Gas, Vaporizing Rotary or Gun Oil Burners, Stoves, Furnaces and Boilers.

LOOK FOR THE BROOM ON THE PACKAGE

CLEAN SWEEP COMPANY
3045 Rolfe Road - Lansing, Michigan
ASK YOUR JOBBER OR WRITE US FOR DETAILS TODAY

RAJAH TERMINALS

FOR OIL BURNER SPARK PLUG IGNITION CONNECTIONS
Made in Two Styles
CRIMP TYPE and SOLDERLESS



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THE RAJAH CO. BLOOMFIELD, NEW JERSEY

OIL HEAT SPECIALTY SALES SEMINAR

A specialty sales seminar for oil equipment sales techniques — motivations — public speaking — sales psychology — oil burner and equipment orientation under joint sponsorship of

WALTER HERVEY JUNIOR COLLEGE
and
OIL HEAT INSTITUTE OF AMERICA

Classes begin March 27

Write or call Dean, Evening Division

WALTER HERVEY JUNIOR COLLEGE
15 West 67th St., New York, EN 2-8117

SAYBOLT Calibration Prevents Profit Leaks!

LOSSES due to inaccuracies in meters and tanks can be prevented by having your fueloil meters, tank trucks, and bulk storage tanks accurately calibrated.

Small daily losses, when multiplied by a year's operation, can cost you hundreds of dollars annually. Our calibration service safeguards you against these unseen leaks in your profits. The cost is paid for many times over in fuel savings.

There are more than 50 Saybolt offices to serve you in the United States and foreign ports. Your request will bring complete information.

E. W. SAYBOLT & COMPANY

Serving the Petroleum Industry for Over Half a Century

265 BAYWAY ELIZABETH 2, N. J.

cluded special side trips to historic Williamsburg and the Norfolk Naval Base. In addition to the vacationeers, 65 contest winners, unable to attend, received a choice of merchandise prizes.

Sundstrand Pump School Held in Framingham, Mass.

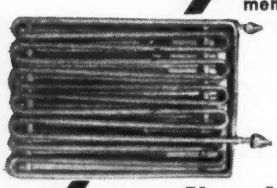
ABOUT 175 oilburner servicemen and service managers from central Massachusetts attended a factory-conducted school on Sundstrand fuel units and pumps, sponsored by Oil Heating Supply Co., Framingham, Mass., an approved Sundstrand service station. This, the first training course since the war in the area, was designed to acquaint newcomers with the Sundstrand line.

Harold O. Wahlmark, service manager, Sundstrand Hydraulic Div., Rockford, Ill., lectured on servicing the units, assisted by Phil A. Anderson, Sundstrand's New England representative. Mr. Wahlmark's talk included discussions on testing the pump on the job, single and two line installations.

R. E. Eldridge, Oil Heating Supply Co., awarded attendance prizes to servicemen from Simard Sales and Service, R. O. Leveille and A. G. Snay, all of Marlboro, Mass.; K. & T. Htg. Co., Framingham and Frank Barsanti and P. A. Ruggiero, Milford, Mass. All who attended are to receive a special pump testing gadget.

TRIANGLE **Submerged Coils**

One dependable source for all your coil requirements. Prompt service.



All makes of coils repaired.

Your Inquiry Invited

TRIANGLE TUBE & SPECIALTY CO.

146 Yale Road Audubon, N. J.

Sundstrand

an oil burner for every heating job

- All Surfaces Machined
- Precision Made Throughout
- Completely Fire Tested
- Variable Tube Lengths To Fit YOUR Requirements
- Flange Mounted
- Meet All Local And State Requirements

Write Us For Complete Information

SUNDSTRAND ENGINEERING COMPANY

ROCKFORD ILLINOIS

Special discontinuance SALE

New stock. Limited quantity Model 901 Complete gasoline engine drive and meter with straight reading dial....$200.00

Quantity Tokehim hand pumps model 822 and 824 with automatic shut off. Special price while they last.....$15.00

All prices FOB San Francisco—subject prior sale.

Above items are now being offered at this price due to discontinuance of line.

OIL MARKETING EQUIPMENT COMPANY

325 FREMONT STREET, SAN FRANCISCO, CALIF.

GArfield 1-5328

HEADQUARTERS FOR ALL TYPES OF HOSE REELS

Manufacturers OMECO individually molded rubber truck fill stand hose for bottom loading of gasoline tank trucks.

For More Profitable Jobs

NU-TROJAN Combustion Chambers

A Product of McLeod & Henry Co., Inc.

A. R. WEBBER CO., INC.

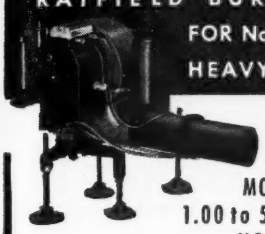
DEPT. 61

NEW HAVEN 11, CONN.

Nu-Trojan Chambers have the features that lower installation costs and reduce servicing costs to help you secure profitable jobs. Has few parts, does not need steel bands to hold them in place. First quality "Steel Mixture" Pennsylvania fire clay. Fusing point 3180° F. Write Dept. 61 for details.

EVERYTHING FOR THE OIL BURNER TRADE

RAYFIELD BURNERS
FOR No. 4 or No. 5
HEAVY OILS



MODEL JR.
1.00 to 5.00 GALS./HR.
MODEL D4
3.00 to 12.00 GALS./HR.

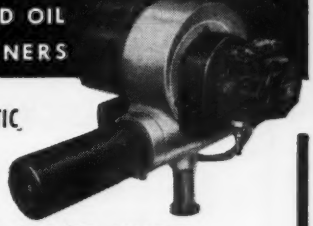
1. Fully Automatic
2. Self Cleaning Nozzle
3. Self Lubricating
4. All Electric Operation
5. Pays for itself from savings
6. Burns the cheaper No. 5 oil

RAYFIELD
AUTOMATIC

HEAT RECLAIMERS

1. Low in Price—Automatic—Easy Installation
2. Installs on Boilers, Furnaces or Stoves
3. For use with Coal, Gas, Oil or Wood
4. Increases output of ANY gravity warm air furnace
5. Heats Basements, Play Rooms, Garages, etc.
6. The hotter the stack—the more heat reclaimed
7. Saves wasted heat now going up the chimney

RAYFIELD—SHELL COMBUSTION
HEAD OIL
BURNERS



for CATALYTIC
OILS TO
#3 GRADE
2 MODELS
1.00 to 3.00 GALS./HR. CAPACITY

1. Shell Head Economy 12 to 15% CO_2
2. Clean boilers with perfected combustion
3. Burns Catalytic oils easily
4. Quiet—No Vibration or pulsation
5. Cuts user's oil bills 14 to 36%
6. The ideal replacement oil burner

C. L. RAYFIELD COMPANY • 2010-18 SO. HALSTED ST. • CHICAGO 8, ILL.

York-Shipley Names New Sales-Merchandising Men

YORK-SHIPLEY, INC., York, Pa., has announced the formation of a greatly expanded merchandising division and plan a much expanded promotional and merchandising activity. Dave Wepman, active in oilheating merchandising for more than 20 years heads the new division.

Larry J. Studnicky, long with Timken, and more recently with York-Shipley, is preparing an extensive sales-training program for York-Heat dealers and distributors.

W. W. Kane, who came up through the York-Shipley organization, and recently in charge of cooperative advertising, moves up as coordinator of the new division.

Metromatic To Begin New Factory Building

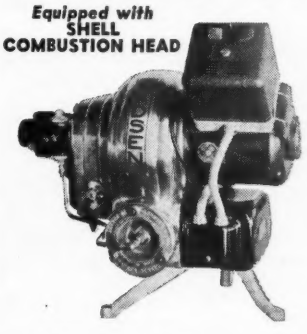
PURCHASE of a 99,000 sq. ft. tract of land from the City of Everett has been announced by the Metromatic Mfg. Co., Everett, Mass. Construction will be started immediately of a $150,000 building for the production of Metromatic oilburners and Metropac combination winter air conditioner and domestic hot water heater. It is estimated that 250 persons will be employed at the new factory, which is to be equipped with machinery to facilitate volume production.

Metromatic has been producing Metropacs in plants at Somerville, Cambridge and Everett, Mass.

NEW YORK TECH
America's Outstanding School of
OIL BURNER
INSTALLATION
AND SERVICING
The School to Think of if:
YOU HAVE MEN TO TRAIN
or
REQUIRE TRAINED SERVICEMEN
Call or Write
NEW YORK TECHNICAL INSTITUTE
553—6th Avenue, New York 11, N. Y. CHelsea 2-6330

MORE BUSINESS
To make more money, you need more business. To do more business, you need more money.
Our financing on the security of accounts receivable supplies you with all the money you need to do more business and make more money.
It's easy to find out all about our service. Just ask for our representative to call.
LEXINGTON CORPORATION
M. S. LURIO, *Pres.*
Fuel Financing from Maine to Maryland
10 MILK STREET • *Liberty 2-6878* • BOSTON, MASS.

MADSEN OIL BURNERS
Equipped with
SHELL
COMBUSTION HEAD



The Burner
That Saves Up To
36%
On Oil
4 MODELS
¾ gph to 14 gph
Write today for dealership
MADSEN SERVICE • 3549 NICOLLET AVE.
MINNEAPOLIS, MINN.

UNDERWRITERS' APPROVED

SHALLO-WELL
OIL-FIRED FLOOR FURNACES
ONLY 34 INCHES DEEP
BTU CAPACITIES OF
★ 50,000 ★ 65,000 ★ 75,000
Write for Details!
ORAN
ORAN COMPANY
2230 S. THIRD STREET
COLUMBUS 7, OHIO

Guaranteed EVEN HEAT DISTRIBUTION

QUICKLY... ON ONLY 4 TO 8 OUNCES of VAPOR

THE GORTON SYSTEM of VAPORIZING and EQUALIZING existing steam heating systems for automatic heating provides automatic heat distribution . . . The flow of vapor to all radiators is automatically controlled so that rooms farthest from the boiler are heated as quickly as those near the boiler . . . NO PIPING CHANGES ARE REQUIRED.

THE SURE CURE FOR COLD RADIATORS

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Oilheating Trends

(*Continued from page 11*)

markets. As one check on this the fuel-oil marketers were asked the API gravity rating of the fuel they now get. In New England this ranged from 30 to 35.3 with an average of 33.0; in the Mid-Atlantic states the range was from 28 to 36.5 with an average of 32.1. In the Midwest the variation was from 32 to 38 averaging 35.4; in the Pacific Northwest the low was 31.2 and the high 34.0, averaging 32.7. Before the war No. 2 fuel averaged around 36 on this scale. The present national standards admit a product as heavy as 28, so with an average of 33.3 it is clear that the refiners are staying pretty well up.

The gravity measurement has little relation to the degree of satisfaction with the fueloil. The 29% of dealers who find present quality unsatisfactory are getting product with an average API gravity of 33.6 which is slightly above the average for the total reporting group.

Approximately 2% of central heating oilburners had their fuel shifted from No. 2 to No. 1 oil since the heavier fuels have come on the market. The total number of central heating oilburners now served with No. 1 oil by the fueloil marketers reporting this month

PER CENT OF BURNERS SHIFTED TO NO. 1 OIL

	New Eng.	Mid Atl.	Mid West	Pac N.W.	All Sec.
Changed since war	1.1	0.7	4.8	0.2	2.0
Total now using	2.4	2.0	12.8	0.3	5.2

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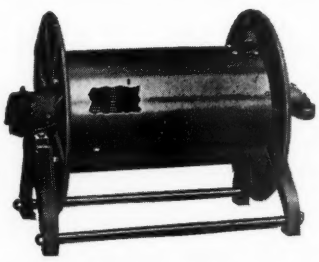

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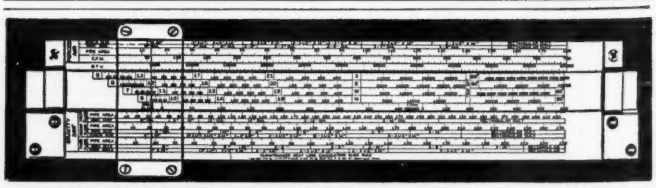

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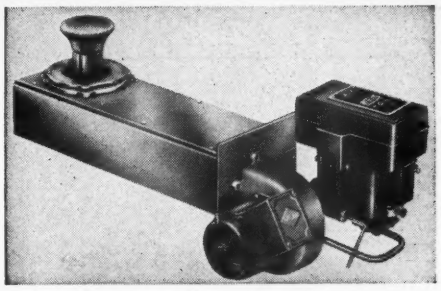

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are 5.2% of all of their customers. Notice in the table that there is a wide geographic difference. The Midwest has a much higher percentage using the light oil principally because it is readily available in that area. If the East coast should at some future date make No. 1 oil plentiful in the primary markets quite a lot more central heating oilburners would use it.

Dealer Comments: Typical comments on questions of the month are these . . . "Oil should be cheaper" . . . "Oil has improved somewhat but not to our satisfaction; sludge formation still most important detriment" . . . "The better oil seems to be plentiful" . . . "John Lewis is still the best oil salesman" . . . "What is all the talk and rumors about a burner made of white metal having trouble with fires and melting of parts" . . . "Our deliveries on No. 2 oil are 30% ahead of last year" . . . "We still need a better margin in fueloil—who else operates a business on a 15% mark-up" . . . "Gas is tough and rough in Youngstown" . . . "We were out of burners and furnace units due to a factory strike, not the steel strike" . . . "We are getting very poor controls; too many have to be sent back to the factory" . . . "Too many heating contractors in our market are using unskilled labor to install oil equipment and causing customer complaints and excessive service" . . . "We are getting thermally cracked oil with 38.6 gravity in the No. 2, but we are going into catalytic oil in the spring if possible; we have 98% low pressure burners and we burned crude in these during the shortage."

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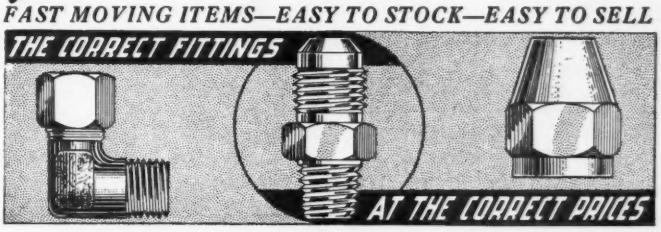

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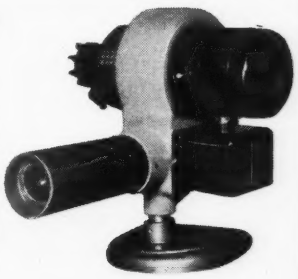

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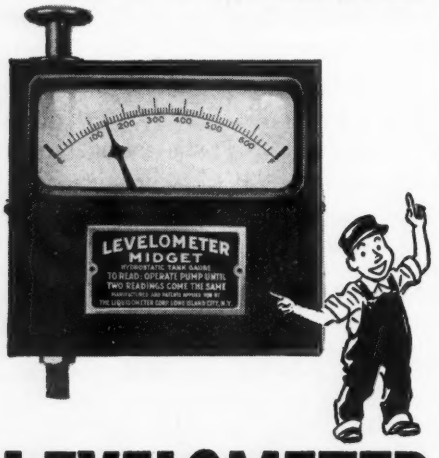

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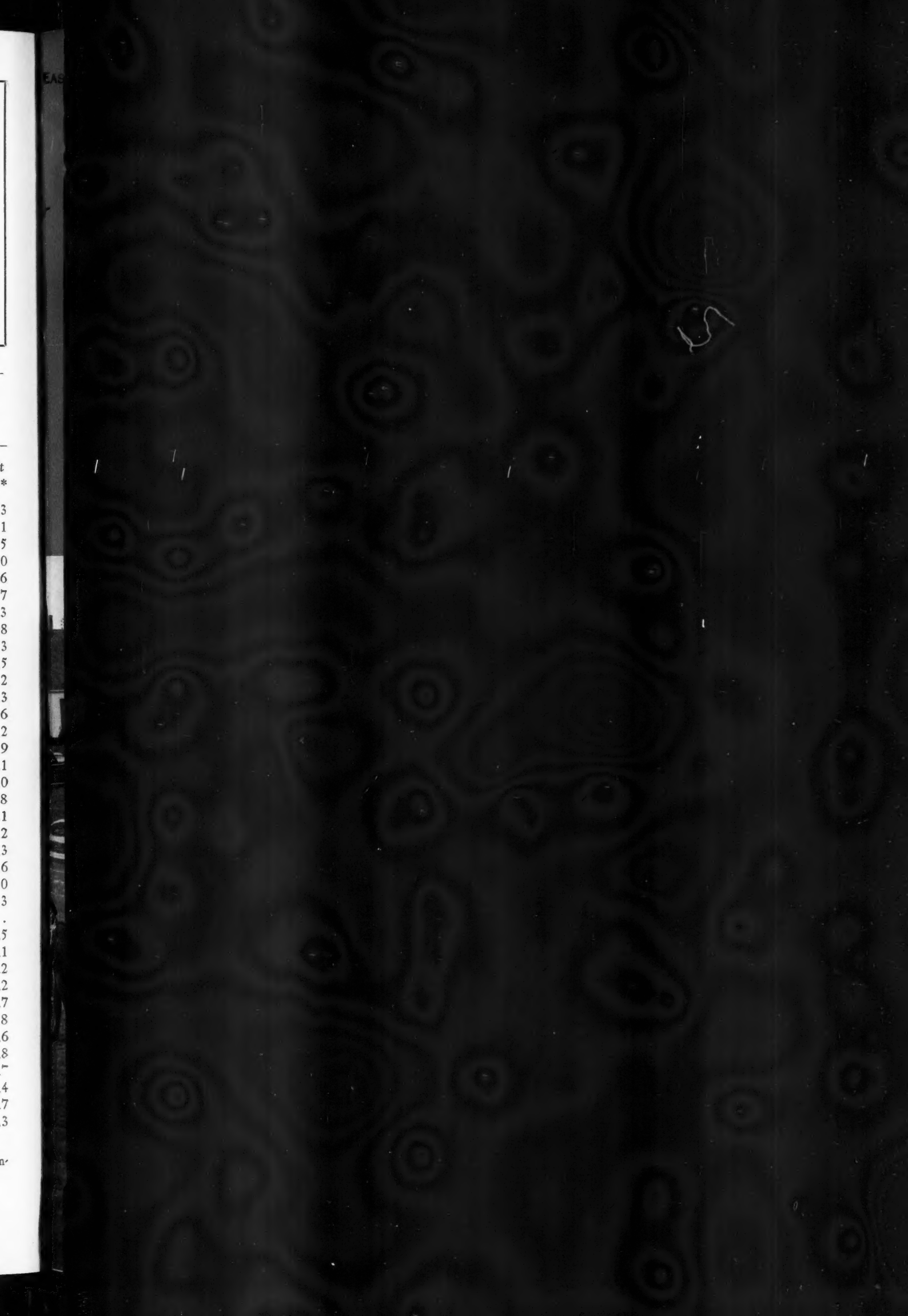
DEGREE DAY TABLES

ONE MONTH ONLY					SEASON TO DATE (Sept. 1 to Nov. 30)			
Normal	November 1948	November 1949	Percent Change*		Normal	1948	1949	Percent Change*
756	514	837	+ 10.7	Albany	1282	1036	1388	+ 8.3
393	304	408	+ 3.8	Atlanta	535	457	481	— 10.1
531	363	488	— 8.1	Baltimore	795	656	640	— 19.5
651	461	644	— 1.1	Boston	1087	878	979	— 10.0
747	536	811	+ 8.6	Buffalo	1282	1107	1290	+ 0.6
709	608	745	+ 5.1	Chicago	1127	1064	1147	+ 1.7
613	456	536	— 12.6	Cincinnati	939	794	768	— 18.3
688	484	710	+ 3.2	Cleveland	1134	1004	1035	— 8.8
298	318	200	— 32.9	Dallas	373	385	320	— 14.3
721	787	425	— 41.1	Denver	1260	1202	952	— 24.5
768	708	672	— 12.5	Des Moines	1224	1110	1112	— 9.2
753	580	782	+ 3.8	Detroit	1249	1116	1234	— 1.3
768	625	776	+ 1.0	Grand Rapids	1327	1123	1266	— 4.6
691	547	728	+ 5.4	Hartford	1165	1051	1117	— 4.2
940	939	754	— 19.8	Helena	1829	1840	1846	+ 0.9
162	152	120	— 26.0	Houston	189	175	153	— 19.1
663	543	636	— 4.1	Indianapolis	1027	962	945	— 8.0
599	563	459	— 23.4	Kansas City	891	814	733	— 17.8
110	101	66	— 40.0	Los Angeles	158	143	120	— 24.1
550	449	558	+ 1.5	Louisville	802	730	777	— 3.2
788	691	801	+ 1.6	Milwaukee	1317	1159	1314	— 0.3
943	896	836	— 11.4	Minneapolis	1590	1384	1423	— 10.6
147	102	135	— 8.2	New Orleans	170	199	352	+107.0
600	380	552	— 8.0	New York	925	689	728	— 21.3
741	752	591	— 20.3	Omaha	1147	1130	1148	..
544	376	541	— 0.6	Philadelphia	815	665	705	— 13.5
656	462	621	— 5.4	Pittsburgh	1049	920	933	— 11.1
792	607	862	+ 8.8	Portland, Me.	1430	1168	1520	+ 6.2
540	593	369	— 31.7	Portland, Ore.	947	1021	860	— 9.2
675	458	644	— 4.6	Providence	1142	877	975	— 14.7
558	499	680	— 14.0	St. Louis	812	758	725	— 10.8
712	835	529	— 25.8	Salt Lake City	1184	1214	1047	— 11.6
242	256	161	— 66.5	San Francisco	504	568	485	— 3.8
965	827	1050	+ 8.8	Sault St. Marie	1860	1642	1912	+ 2.7
558	602	405	— 27.5	Seattle	1104	1172	1001	— 9.4
721	605	755	+ 4.7	Toledo	1188	1129	1221	+ 2.7
558	389	502	— 10.1	Washington	855	699	673	— 21.3

*Compared with normal (Above figures secured from Monthly Meteorological Summaries published by U. S. Weather Bureaus in individual cities).